

Ten Year Priority List

The *Ten-Year City Priority List – Recreational Outdoor Facility Development Listing*, as outlined in the table below, and the *Ten-Year City Priority List – Recreational Indoor Facility Development Listing*, as outlined in Table 13 on the following page, together represent the culmination of the *Parks, Recreation and Open Space Master Plan*. These represent the synoptic conclusion of the park master planning process. Annual review of these lists will allow analysis of priority recommendations for acquisition, improvements and new facilities, in order to enhance the quality of Sachse's park and recreation amenities.

TABLE 12
10-Year City Priority List – Recreational Outdoor Facility Development Listing
 City of Sachse, Texas

Priority	Facility	Timing	Estimated Cost	Possible Funding Sources
1.	Hike & Bike Trails	2010 - 2015	\$185,000 per mile	Bonds, Grants, Private Donations,
2.	Picnic Tables	2010 - 2015	\$1,500 per table	Bonds, Grants, Private Donations
3.	Playgrounds	2010 - 2015	\$65,000	Bonds, Grants, Private Donations
4.	Baseball	2010 - 2015	\$250,000	Bonds, Grants, Private Donations
5.	Youth Softball	2010 - 2015	\$250,000	Bonds, Grants, Private Donations
6.	Adult Softball	2010 - 2015	\$300,000	Bonds, Grants, Private Donations
7.	Multi-Use Courts	2010 - 2015	\$35,000	Bonds, Grants, Private Donations
8.	Sand Volleyball	2010 - 2015	\$20,000	Bonds, Grants, Private Donations
9.	Park Benches	2010 - 2015	\$1,500	Bonds, Grants, Private Donations
10.	Splash Park	2010 - 2015	\$200,000	Bonds, Grants, Private Donations
11.	Horseshoe Pit	2010 - 2015	\$5,000	Bonds, Grants, Private Donations
12.	Open Space Acquisition	2010 - 2015	Varies	Bonds, Grants, Private Donations
13.	Tennis Court	2010 - 2015	\$60,000	Bonds, Grants, Private Donations
14.	Shade Pavilions	2010 - 2015	Varies	Bonds, Grants, Private Donations
15.	Soccer Fields	2010 - 2015	\$150,000	Bonds, Grants, Private Donations

Source for Estimated Cost: Dunkin Sims Stoffels, Inc.

TABLE 13
10-Year City Priority List – Recreational Indoor Facility Development Listing
 City of Sachse, Texas

Priority	Facility	Timing	Estimated Cost	Possible Funding Sources
1.	Indoor Multi-Purpose Courts	2011 - 2016	\$150/S.F. to \$250/S.F.	Bonds, Grants, Private Donations,
2.	Aerobic Room	2011 - 2016	\$150/S.F. to \$250/S.F.	Bonds, Grants, Private Donations
3.	Game Room	2011 - 2016	\$150/S.F. to \$250/S.F.	Bonds, Grants, Private Donations
4.	Arts & Crafts Room	2011 - 2016	\$150/S.F. to \$250/S.F.	Bonds, Grants, Private Donations
5.	Indoor Jogging Track	2011 - 2016	\$150/S.F. to \$250/S.F.	Bonds, Grants, Private Donations
6.	Weight Room	2011 - 2016	\$150/S.F. to \$250/S.F.	Bonds, Grants, Private Donations
7.	Volleyball	2011 - 2016	\$150/S.F. to \$250/S.F.	Bonds, Grants, Private Donations
8.	Soccer	2011 - 2016	\$150/S.F. to \$250/S.F.	Bonds, Grants, Private Donations
9.	Racquetball	2011 - 2016	\$150/S.F. to \$250/S.F.	Bonds, Grants, Private Donations
10.	Rock Climbing Wall	2011 - 2016	\$150/S.F. to \$250/S.F.	Bonds, Grants, Private Donations
11.	Spin Room	2011 - 2016	\$150/S.F. to \$250/S.F.	Bonds, Grants, Private Donations

Estimated costs for construction of the Recreation Center will vary and depend on the final selection of exterior and interior finishes by the City.

The Trail System

Trails are an important component of the future park system, as they serve recreational, transportation and linkage purposes. In Sachse, the transportation and linkage aspects of a city-wide trail system will serve a local and regional purpose. Citizen input with regard to the development of the city-wide trail system plan was collected in connection with the public hearings conducted for the *Parks, Recreation and Open Space Master Plan*. It was felt that the Trail System Plan is an integral part of the City's parks and recreational system.

With the existing trails and previously planned trails located, trail alignments were studied which would implement the priorities as delineated. Specifically, alignments were charted which connected the residential neighborhoods to the parks and schools, provided linkage from park to park and finally loops were provided, facilitating movement throughout the City via non-motorized transportation.

PURPOSE OF THE TRAIL SYSTEM PLAN

First and foremost, the city-wide trail system plan, graphically shown on the *Parks & Trails Map* on page 40 will serve as a planning tool for Parks and Recreation Staff and City Council. It will also serve to create a vision for a city-wide trails and greenway network and assist public and private entities wishing to contribute funds or resources to the development of the system. Another key purpose of the trail plan is to serve as a basis for coordinating with other City departments, to reduce conflicts with their development activities including utility installation, transportation, water quality, storm water runoff, planning services and other activities.

DESIGN CONSIDERATIONS

The following is a general discussion of the parameters associated with trail design and construction. The conclusion of this section contains recommendations for the design and construction of the Sachse Trail System.

Types of Trails

- Separated Trails – Separate trails and trail systems are provided for each type of trail user, e.g. bicyclist, pedestrian, skaters.
- Shared Trails – Trails are shared by two or more user groups but design parameters restrict the use of the trail by some groups.
- Multi-Use Trails – All trail user groups occupy the same trail or trail corridor. The physical design of the trail must be modified accordingly, to accommodate the demands of the expected user groups.

Trail Surfaces

- Natural Surface –** Most of Dallas County is on clay type soil, which is easily disturbed when wet. Side slopes should be stabilized to avoid being washed onto the trail during heavy rain. Drainage is the key to trail corridor safety and maintenance. Use appropriate grading techniques and soil stabilization, such as, grass seeding, plantings, erosion control blankets or rock rip-rap to minimize hazards to users. Natural surface trails should not be used during periods of wet weather to prevent surface damage and should be so signed at trailheads.
- Mulch –** Mulching a trail can be an effective treatment for trails in clay soil areas. To avoid washouts and watershed deposits, mulching should be avoided in areas of steep terrain. Many types of mulch can work, but one of the most effective and least expensive, long-lasting treatments is hardwood mulch.
- Boardwalk –** Trails should avoid sensitive environmental areas, low areas, wetlands or flood plains. However, trails in wetlands can be useful as educational corridors. Boardwalks allow existing drainage patterns and a site's hydrologic conditions to be preserved while providing access to areas of interest. Boardwalks minimize construction damage and prevent user disruption to fragile ecosystems. Areas for which boardwalks should be built include marshy or wet sites in the immediate vicinity.
- Gravel –** Gravel, is a granular rock material used in non-rigid paved surfaces and generally defined as having a particle size between 2mm (fine gravel) and 20mm (medium to coarse gravel). When considered as a paving material, gravel has several desirable characteristics. Gravel drains well and is a pervious material, and the coarser the material the less the likelihood that it will be washed away by rainfall or flooding. It is readily obtainable in the Dallas area.
- Its usefulness as a trail paving material is limited. Gravel is a non-compacting material that is loose and inhibitive to all forms of trail use other than casual foot traffic. Roller blades, bicycles and wheelchairs alike will not perform adequately on a gravel surface and are subject to skidding and a general lack of traction. Pedestrians tend to collect irritating gravel particles in their shoes, rendering the trail more or less a nuisance than an enjoyable outdoor amenity.
- When mixed with other material such as clay/silt particles, or other cement type material, gravel can be stabilized as a semi-rigid to rigid paved surface. Such a surface would be more accepting of wheeled and foot traffic.
- When adding gravel or mulch to a trail, care should be taken to avoid excessive material depth, as this can impair even the hardest pedestrian. Of the many different types of gravel treatments available, some are much more conducive to trail use. Avoid pea-gravel for anything other than equestrian trails, and even

then, use should be sparing. Aggregate, crushed or decomposed granite is a very effective trail surface and can easily be upgraded to hard surface. Although off road bicyclists can negotiate most well-compacted gravel trails, access can be difficult for disabled users.

Asphalt – Hot mix asphalt can be cost effective to install, but in areas of full sun, decomposition is accelerated by maintenance vehicle traffic. Edges require containment for stability and long term viability. Surface is softer for walking or jogging. Cold-mix asphalt is suitable for patching but is labor intensive. Asphalt is easy to patch or expand, but care should be taken to ensure an even surface for road bicyclists and wheelchair users.

Concrete – While initially more expensive than other material choices, concrete is the longest lasting trail surface with an expected life span of 25 years or more. It requires the least maintenance of any trail surface material. Only saw cut expansion joints should be used to avoid differential settling due to freeze/thaw and wet/dry cycles. Concrete is suitable for poor sub-soil conditions, but is more expensive to repair. Non-skid medium broom finish is ideal for bicycle traffic. Concrete is less desirable for jogging paths.

Multi-Use Trail Width

The most appropriate width for multi-use trails has been one of the most discussed topics of parks and recreation construction. The following are the widths required for several different scenarios of common trail usage.

- ◆ The minimum width to meet ADA (Americans with Disabilities Act of 1990) guidelines is thirty-six inches (36"); however, this width does not allow traffic flow in both directions and, therefore, should not be considered.
- ◆ A six-foot width is the minimum width to allow wheelchairs traveling in opposite directions to pass unimpeded, even so, at this width the occupants must maneuver to the very edge of the trail.
- ◆ Two people walking side by side meeting a bicycle from the opposite direction would require a minimum width of eight feet (8') and comfortable width of ten feet (10'). However, two people walking side by side would require a comfortable width of twelve feet (12') because the bicycle passing them on the narrower width will result in the pedestrians being startled or require the bicyclist to slow excessively.
- ◆ Two bicyclists pedaling side by side require a minimum width of 5.3 feet and a comfortable width of eight feet (8').¹
- ◆ Two bicyclists traveling in opposite directions require a minimum of 6.5 feet to pass and a comfort width of 10.9 feet.¹

¹ Bicycle Transit, It's Planning and Design, Bruce L. Balshone, Paul L. Deering, Brian D. McCarl Praeger Publishers, New York, 1975.

- ◆ Two bicyclists traveling side by side, meeting a bicyclist from the opposite direction or another bicycle passing them requires a minimum width of nine feet (9') and a comfort width of twelve feet (12').

The North Central Texas Council of Governments' (NCTCOG) *Bicycle and Pedestrian Facilities Planning and Design Guidelines* states "the minimum width required for two opposing bicyclists to pass and share the path with a pedestrian is 12.5 feet."² The NCTCOG guidelines do stipulate that widths less than 12.5 feet may be acceptable given the following circumstances: (1) bicycle traffic is expected to be low, even on peak days or during peak hours; (2) pedestrian use of the facility is not expected to be more than occasional; (3) there will be good horizontal and vertical alignment, providing safe and frequent passing opportunities; (4) the path will not be subjected to maintenance vehicle loading conditions that would cause pavement edge damage and (5) access maintenance or emergency vehicles are not needed. A multi-use pathway should never be less than eight feet (8') wide.

Multi-Use Trail Vertical Clearance

The absolute minimum vertical clearance for multi-use trails is 8.2 feet, with 9.5 feet as the minimum comfortable height¹. The vertical clearance may need to be greater to permit passage of maintenance vehicles². Clearance under crossings and tunnels should be ten feet (10') for adequate vertical shy distance above².

Multi-Use Trail Longitudinal Slope (Grade)

Grades on off-street paths should be kept to a minimum, especially on long inclines. Grades greater than five (5) percent are undesirable because the ascents are difficult for many bicyclists and the descents cause some bicyclists to exceed the speeds at which they are competent². ADA guidelines stipulate that anything exceeding five percent (1 foot rise in 20 horizontal feet) is a ramp and must be constructed with handrails; this equates to a maximum rise of thirty inches (30") in a maximum length of thirty feet (30'). Such guidelines also state that such slope also must have a 60" x 60" landing at the base and the top. Therefore, to be in compliance with ADA guidelines, trail ramps cannot exceed an 8.33 percent slope (1 foot rise in twelve horizontal feet).

Multi-Use Trail Signs

Adequate signs and markings are essential on multi-use trails, especially to alert users to potential conflicts and to convey regulatory messages to both users and motorists at street intersections. In addition, guide signs, such as those indicating destination, direction, distance, route numbers and names of cross streets, should be used in the same manner as they are on highways².

² *Bicycle and Pedestrian Facilities Planning and Design Guidelines*, North Central Texas Council of Governments, December 1995.

Multi-Use Trail Access Points

Although access to the trail will usually be available at every road crossing, the users of the trail should be encouraged to enter the trail at specific access points. By designating specific points of access, there may be an elimination of possible encroachment on private property, as well as, preventing possible congestion at busy road crossings².

Multi-Use Trail Lighting

Lighting of the multi-use trail should be considered, especially if the off-street routes are intended for transportation purposes, many trail commuters may need to travel during poorly lit morning and evening hours. Fixed source lighting reduces conflicts along paths and at intersections. In addition, lighting allows the trail user to see the path direction, surface conditions and obstacles. Lighting should be considered through underpasses or tunnels and when night time security could be a problem².

The standard horizontal illumination level is 5 lux (0.5 foot candle) to 22 lux (2 foot candles). Where special security problems exist, height illumination levels may be considered².

Multi-Use Trail Traffic Control Devices

Pedestrian signals designed to accommodate a one meter (3.2 feet) per second walking speed should be provided at major streets where traffic volume and speed is high. ADA guidelines stipulate that where provided, buttons must be raised or flush and a minimum of 1.9 centimeters (3/4 inch) in the smallest dimension. The force required to activate controls must also be no greater than 5 pounds. Additionally, controls must be located as close as possible to the curb ramp and, to the maximum extent feasible, must permit operation from a level area immediately adjacent to the controls and a maximum of 122.7 centimeters (48.3 inches) high².

To provide clear visibility of pedestrians approaching intersection crosswalks at night, the approaches and all street corners should be well-illuminated. All intersection lighting should illuminate the crossing and waiting areas and/or create backlighting to make the pedestrian silhouette clearly visible on approach. All commercial, entertainment, school and other pedestrian traffic generating corridors and spaces should be well-illuminated. Raised islands in crossings should be cut through level with the street or have curb ramps or other sloped area at both sides. There should be a level area with minimum dimensions of 121.9 cm (48 in) long and 91.4 cm (36 in) wide in the part of the island intersected by the crossings².

SACHSE TRAIL SYSTEM DESIGN RECOMMENDATIONS

The above-outlined design parameters which were specific in nature should be followed as delineated. The following recommendations delineate the selected design criteria for the above-outlined parameters which were general in nature or which gave several options.

Trail Surface

All multi-use trails within the Sachse trail system should be constructed of concrete.

Off-Street Trail Width

In off-street applications, trails should be a minimum of ten feet (10') wide; where feasible the more comfortable 12-foot width should be used.

On-Street Trail Width

In on-street applications, the ten-foot width will not be feasible due to the limited width of the parkway (street-side right-of-way). A minimum width of six feet (6') should be maintained for all on-street trails, where the locale allows trail width should be expanded to eight feet (8') (ten feet (10') adjacent to large lot residential development). In most residential areas an eight-foot (8') maximum width should be maintained, as it is generally accepted theory that this width will tend to reduce the speed of bicycle traffic.

Trail Signs

Warning signs shall consist of the traffic control signage and devices indicated in the design guidelines.

Directional signs are imperative to facilitate user comfort and confidence, thereby ensuring optimal use of the trail from the standpoint of participation/occupancy levels and enjoyment level of the participants. At trail intersections, signs should be provided that indicate destinations of the various trail branches and a distance to each destination. The cardinal directions should also be indicated. Consideration should be given to providing a map of the trail system at each intersection of major trail branches.

Within residential neighborhoods, in addition to the aforementioned signage, the pavement surface shall be demarked in such a manner that trail users will be able to follow the trail routing through the neighborhood without becoming confused and possibly taking a wrong turn.

Spur trails linking neighborhoods to parks and schools shall have a definite indication at the trail terminus so trail users unsuspectingly traveling into the neighborhood are made aware that the trail system ends at that location. Provision of a map indicating the direction to the main branch of the trail would be beneficial at these locations.

Access Points/Trailheads

Trailheads should be served by parking lots accommodating 10 to 20 parking spaces. Trailheads should be located adjacent or a short distance from main trail corridors and located at each main trail terminus. Design elements of trailheads should include a drinking fountain, benches, stretch post or other equipment to encourage and facilitate stretching exercises, and a mounted map of the trail system should be provided indicating the trailhead's present location, thereby helping trail users with way finding.

Recommended Trail Segments

On the *Parks & Trails Map* (page 40), the trails are shown as either sidewalks or separate trail segments. The goal of the Plan is to connect major points of interest such as parks, schools, and retail areas. In order to accomplish this goal, it is necessary to utilize some existing sidewalks in thoroughfare right-of-ways, thereby providing these connections. The best example is the existing sidewalk along Miles Road. It would be difficult and expensive to rebuild the existing sidewalk in the right-of-ways to a width of eight feet (8'), which is the recommended minimum width for trails. The sidewalks, as they are, will serve the purpose and accomplish the goal of connectivity. In order of priority, the following trail segments are recommended to be constructed.

Priority Number One



Cedar Creek Estates Park

The construction of the trail in the Oncor easement / Cedar Creek Estates Park will connect to Miles Road. The sidewalks in the right-of-ways can allow pedestrians access to the future State Highway 190/President George Bush Turnpike. Pedestrians can also travel north on Miles Road to the Sachse Municipal Complex.

The trail can also extend to the west and connect to a sidewalk which provides access to State Highway 78.

Priority Number Two



Sachse Road/Bryan Street Trail

This section of trail can be built when Sachse Road is improved, thus connecting the Municipal Complex to State Highway 78. The northern section of trail adjacent to Bryan Street will connect City Hall to Sachse on the Creek Park, and eventually into Salmon Park and continuing to Williford Road.

Priority Number Three



Williford Road Trail

Williford Road is also scheduled for future improvements; the trail could be designed as part of the thoroughfare project. The new trail would then intersect Bailey Road and turn north to the intersection of Bailey Road and Creek Crossing Lane. The sidewalks on Creek Crossing Lane lead east to Cheri Cox Elementary and into Woodbridge subdivision's trail system.

Priority Number Four



The Park/Land Acquisition

The remaining proposed trail system shown in blue should be referenced when property is developed so land or easements can be acquired for trail construction. Based on the priority for trails, the City may also select a segment of trail for construction if a need arises or if funding for the trail becomes available through grants or City capital projects.