

# Seeking Walkability and Bikability in Salt Lake City

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**Abstract.** This paper discusses City Council legislative intents, Mayoral support, master plans and implementation of measures in Salt Lake City to encourage walking and bicycling as viable, mainstream transportation modes. Programs, projects, funding and staff resources are addressed. Innovations and testing of experimental traffic controls to improve non-auto mobility and safety is presented. Partnerships with the Utah Transit Authority and the University of Utah to provide a car-sharing program which encourages life without an auto is also presented. Planned activities such as developing a bike-sharing program, providing a significant increase in bus shelters and continuing a significant expansion of bike lanes and trails is also presented.

The Mayor and City Council in Salt Lake City are very much in tune with the community's increasingly growing appetite for improved pedestrian and bicycle facilities and amenities. Even in the present difficult economic climate, significant funding has been provided to staff this effort and build facilities. 38 lane miles of dedicated bike lanes were added to the existing 120 bike lane miles in 2009, a 1/3 increase. Funding has been provided to hire a full time Trails Coordinator. Green shared lane pavement markings are currently being tested and HAWK beacons will be tested this spring with the approval of the FHWA. A car-sharing program has recently started which allows non-auto owners opportunity to drive when necessary and commuters to travel by transit to the City and still be able to economically avail themselves to an auto for special trips.

## INTRODUCTION

Nearly ten years ago, Salt Lake City embarked on an effort to improve pedestrian safety and walkability. A few years later, emphasis was also placed on increasing bicycle facilities and improving bicycling safety. And most recently, emphasis has been added in the area of trail development. This is all due to a highly supported effort to improve and encourage the use of these modes of travel for commuting and recreation.

The Surface Transportation Policy Project's "Mean Streets 2000" report, labeled the Salt Lake City-Ogden metropolitan area as "not pedestrian friendly." At that time and with the support of the Mayor and City Council, the city's Transportation Division took the lead role in creating an ongoing initiative to identify and implement pedestrian safety measures with the overall goal of reducing pedestrian-involved accidents. As a result, of implementing a number of initiatives, pedestrian involved accidents have been reduced approximately 20%.

Subsequently, a similar effort was employed to improve bicycling safety, expand the bike lane system and encourage that mode of travel. Most recently, the economic downturn has resulted in an unprecedented increase in bicycling and transit use. In response, Salt Lake City has added staff and resources to further expand bicycling facilities and its trail system.

This paper describes the various pedestrian safety initiatives and bicycle and trail improvements implemented and underway to improve the walkability and bikability of Salt Lake City.

## PEDESTRIAN SAFETY INITIATIVES

A Pedestrian Safety Committee was created consisting of city staff from the city's transportation, police, attorney, ADA, street maintenance and mayor's offices. Periodically, citizens and others interested in pedestrian safety also participate in committee meetings. Members review available local data, research literature, and brainstorm ideas believed to improve pedestrian safety. Then, when an initiative is ready to be implemented, an "educate/implement/enforce" rollout method is employed. This typically involves a media release combined with a staged, on-street unveiling by the Mayor with television and newsprint media coverage. This purposely flamboyant unveiling has proven highly effective in educating the public of the pedestrian safety initiative and provides a focused opportunity to remind them of previous initiatives and the importance of pedestrian safety. The media event is usually scheduled to coincide with the finishing touches of installation to provide the media with unique photo opportunities. After implementation, city police publicly schedule targeted enforcement of the new initiative as necessary. This enforcement may involve warnings or citations. It includes enforcement of violations by drivers as well as by pedestrians to avoid any sense of favoritism.

The following are some of the more notable pedestrian safety measures implemented thus far by the Pedestrian Safety Committee.

### Crosswalk flags and the "Adopt-A-Crosswalk" program



In August of 2000, as part of the Salt Lake City Pedestrian Safety Committee's initial efforts to reduce pedestrian involved accidents, flags were placed at six crosswalks in the downtown area. The idea is simple. Place a container of flags at each end of a crosswalk with a sign instructing pedestrians to carry one with them while crossing. The brightly colored flags benefit pedestrians by making them more visible to drivers and the simple act of holding one alerts drivers that the pedestrian has a desire and intent to cross the street. An added benefit of this initiative is that many drivers have commented that simply having the brightly colored flags sitting in holders at both ends of a crosswalk makes the crosswalk stand out more.

There was some initial reluctance by the public to use the flags, but that quickly waned as the benefits of their use became apparent. After the success of the initial six locations, the city installed more flags at midblock locations downtown. As the number of downtown flag locations increased, so did public interest in having them installed in neighborhoods. As a result, in January 2001, the Adopt-a-Crosswalk program was created. The Adopt-a-Crosswalk program allows individuals or businesses to have crosswalk flags by "adopting" or "sponsoring" a crosswalk which relieves the city from the responsibility and cost of

maintaining them. To adopt a crosswalk, the sponsor agrees to occasionally monitor the flags to insure they are available at both ends of the crosswalk and to provide replacement flags as needed. In return, the City installs the flag holders, and provides an initial supply of flags at no cost to the sponsor. The Adopt-a-Crosswalk program has subsequently been expanded to include elementary schools where the city agrees to provide all replacement flags at no cost as long as the school agrees to distribute them in the holders. For all other sponsors, the city provides replacement flags to sponsors at \$.50 each – subsidizing part of the cost.

At this time, Salt Lake City has 217 crosswalks outfitted with orange flags: 46 city maintained, 58 school maintained and 113 resident/business maintained.

#### Pedestrian Related City Ordinance Modifications

In September 2001, following an exhaustive review of city ordinances pertaining to pedestrian safety and research into those used by other cities and states, several changes and additions were made to city ordinances including updates in definitions and descriptions. Fines for pedestrian-related violations were also restructured.

Driver yielding violations against disabled pedestrians, pedestrians carrying orange flags, and school crossing guards require an appearance before the city's Justice Court judge. The fine schedule ranges up to \$750 with a recommended fine of \$425; as determined by the judge. Repeat driver violations against any pedestrian in a crosswalk within a year of a previous offense trigger the same court appearance requirement and fine schedule. In addition, first offense fines for driver violations against other pedestrians in crosswalks were increased from \$34 to \$70.

Two other ordinance changes have resulted in treatments believed to be unique in the industry. The first involves defining a "moving auto-free area," one travel lane wide in front of and behind a pedestrian walking across a street in a crosswalk. Many of the streets in Salt Lake City are very wide multi-lane roadways. It is deemed impractical to require a driver to not cross a crosswalk if a pedestrian is anywhere within the same half roadway as the driver's direction of travel which is a fairly common requirement in other cities and states. In reality, most drivers do not presently and will not typically yield more than a travel lane separation between their vehicle and a pedestrian. This moving, auto-free zone approach works well in every situation regardless of the number of travel lanes on the street, the direction of travel or presence of turn lanes. It reduces delay to drivers while providing a safe separation between vehicles and pedestrians.

The second unique ordinance involves allowing pedestrians to initiate a crossing during the flashing DON'T WALK clearance phase, but only at crosswalks equipped with pedestrian countdown timers. The reasoning behind this change is that at these locations pedestrians are provided sufficient information to make a judgment as to their ability to walk across the street safely as opposed to requiring every pedestrian to wait once there is insufficient time for the slowest pedestrian to cross. In effect, the ordinance increases the pedestrian level of service at by increasing the number of pedestrians who can legally cross during the pedestrian phase.

In 2009, city ordinances relating to when drivers are allowed to occupy bike lanes as clarified.

## Pedestrian Safety Brochures



In response to a number of complaints from senior citizens about difficulty in crossing city streets, a brochure entitled “How Pedestrian Signals Work” was created in July of 2001 by the city's Transportation Division and critiqued by the Pedestrian Safety Committee. Visits were then made to every senior residential center in the city to distribute the brochure and explain how pedestrian signals work. This provided an opportunity to answer questions and identify locations where seniors had difficulty crossing streets. Other brochures, created in December 2002, include “Crosswalk Flags” explaining the Adopt-a-Crosswalk program and “Pedestrian Laws” which explains laws regarding pedestrian and automobile interaction.

### Longer Traffic Signal WALK Phases

In August 2000, the city convinced the metro area’s Traffic Management Committee to modify its practice for timing pedestrian WALK and DON'T WALK phases to allow additional WALK time at many of the area's traffic signals without adding time to signal cycles. Previously, many signals in the Salt Lake valley area used a five-second WALK phase, regardless of the total time available for the pedestrian crossing. Now, valley-wide policy is to provide a minimum of 5 seconds WALK display, but to continue showing the WALK symbol as long as the phase has available time before needing to start the flashing DON'T WALK clearance phase.

In 2009, the City and UDOT worked cooperatively to evaluate signal timing on downtown streets. The result was implementation of common signal cycle lengths during peak and off-peak hours on both City-owned and state-owned roadways. This required a longer cycle length at city-owned signals, which resulted in overall less delay to drivers but also longer WALK times for pedestrians. Both benefits have been noticeable improvements appreciated by the public.

### Pedestrian Countdown Timers



In the fall of 2000, a test pedestrian countdown timer was unveiled by the Mayor at one of the busiest midblock signalized crosswalks in the downtown area. User surveys, showing a very high level of support for this device, led Salt Lake City and UDOT to install additional countdown timers in the downtown area. In 2005, the city completed upgrading all city maintained pedestrian signals with countdown timers and has since required them when upgrading or installing new traffic signals. There are currently more than 1,000 pedestrian countdown timers in Salt Lake City.

### Pedestrian-Actuated Overhead Flashing Lights

In March 2001, Salt Lake City's first pedestrian-actuated, overhead flashing lights were installed over a busy 4-lane street (900 W. 600 S.) at a high pedestrian volume intersection crosswalk. This device consists of one light over each travel lane on the approach to the crossing and an overhead pedestrian crosswalk sign hung overhead. When a pedestrian pushes the activation button, the lights flash in an alternating pattern for a period equivalent to the pedestrian walking time plus 10 seconds. It was publicly debuted by the Mayor as part of the public education element of introducing and reminding the public of the importance of pedestrian safety. Members of the local community council arranged for entertainment, balloons and a crowd; all of which made for great media coverage.

During 2002, two additional pedestrian-activated overhead flashing light systems were installed and one existing, constant-flashing light crossing was converted to pedestrian-actuated. At one of the new locations, an additional enhancement of the system involved adding an overhead crosswalk illumination system. During hours of darkness, a metal halide light attached to the crosswalk mast arm and specifically configured to illuminate the rectangular crosswalk area is lit at 30% light output. When a pedestrian activates the pushbutton, the light illuminates at full capacity during the time the flashing lights are activated. This illumination element provides an additional visual cue to drivers of the presence of pedestrians, but is only recommended for locations with high pedestrian usage during hours of darkness.

The pedestrian-actuated overhead warning lights have been well received by the public. Informal observations reveal that the number of motorists yielding to pedestrians at these locations has increased dramatically since the lights were installed. Because the lights are only lit when pedestrians are present, drivers tend to notice and yield to pedestrians more consistently. Salt Lake City has added approximately two installations of ped-actuated lights annually since 2002 and does not use full-time flashing lights.

### "LOOK" Crosswalk Pavement Markings



The test application of "LOOK" pavement markings at six crosswalks in the fall of 2001 received such strong public acceptance that they were installed during December 2001 and January 2002 at all downtown crosswalks prior to the Winter Olympics to assist visitors from countries that drive on the opposite side of the street from the United States.

The final design resulted from a collaborative effort using examples from other countries and evaluation by the Pedestrian Safety Committee. The word "LOOK" in twelve-inch letters with left and right pointing arrows is dye-cut into solid black and solid white pavement marking material. The two letter "O"s are cut with small eyeballs on the inside of the letters to help advertise the intended meaning of the message. The letters and arrows are interchanged with the background material to provide black-on-white and white-on-black messages, resulting in no wasted material. During

the spring of 2002, this effort was expanded to install “LOOK” messages at elementary school crosswalks citywide.

These messages have weathered well in the four-season climate of Salt Lake City. Patching and replacement will be conducted as needed during 2010.

### Advance Crosswalk Pavement Markings



To help alert drivers to difficult-to-see non-signalized crosswalks on busier multi-lane collector and arterial roadways, the City Transportation Division staff designed and the Pedestrian Safety Committee critiqued an advance crosswalk pavement marking pattern. The design consists of rectangular, white bar pavement markings, sized and placed to form a triangle on travel lanes in advance of midblock crosswalks. Drivers have reported this treatment helps them more easily identify crosswalks that they are approaching. During the fall of 2002, these markings were installed at 20 locations citywide.

These markings are used on multi-lane streets with speed limits of at least 30 MPH. Currently, advance crosswalk pavement markings are installed at 45 crosswalks within the city.

### Pedestrian refuge islands

In 2008, two pedestrian refuge islands were installed in combination with pedestrian actuated overhead flashing lights on a busy five-lane arterial roadway. The two new crosswalks connect a neighborhood to a regional park. An electric snowmelt system was integrated into the pavement to eliminate the need for winter maintenance. The flashing lights are solar-powered.

### HAWK Signals



Salt Lake City currently has 4 HAWK signal installations underway that are expected to be operational by spring 2010. They are located on a busy arterial street that the City recently took over ownership of from the state. The signals are part of a comprehensive safety improvement effort resulting from a road safety audit. It is anticipated that these displays will become very popular and more will be introduced at downtown crosswalks over the next few years.

## **BICYCLE FACILITIES**

Salt Lake City's current Mayor and City Council are serious bicycle advocates. This fortunate circumstance compounded by the economic downturn has resulted in a significant increase in

bicycle riding, particularly for commuting, but also for recreation. That has, in turn, led to a significant increase in requests for more and safer bicycle facilities. In the early 2000s, as a result of the desire to improve pedestrian safety, the City added a full-time Pedestrian/Bicycle Coordinator position. With the increased desire to add bicycle facilities including off-road trails, the City added a second position. The Transportation Division created a Non-Motorized Transportation Section with a full time Trails Coordinator and a full-time Ped/Bike Coordinator.

The following are some of the more notable bicycle facility and safety measures implemented thus far.

### On-Street Bicycle Lanes

Salt Lake City had been adding 5 to 10 lane miles of bicycle lanes annually. In the current fiscal year, the City Council provided 10 times the normal funding for bicycle facilities, \$450,000. In the summer and fall of 2009, 38 lane miles of new marked and signed bicycle lanes were added to the existing system now totaling 158 lane miles, a 1/3 increase in bicycle lanes. Work is underway now to identify new bike route candidates to implement during the summer of 2010. Most of the easy routes have been implemented. A process is underway to discuss removing parking from one side of residential streets to provide sufficient width to paint bicycle lanes. This can be a very touchy subject; but we are hopeful of showing that in most cases, the neighbors paring needs are easily handled on one side of the street and bike lanes add to the quality of life of the neighborhood.

### Green Shared Lane Markings



In 2008, Salt Lake City received federal approval to test green shared lane markings. The intent was to improve on the sharrow markings for shared lanes. We developed a pattern consisting of a four-foot wide bright green lane marking with white bike symbols and sharrows plus shared lane signing. We tested it on one city block in the heart of downtown where a middle of the street ramp to a parking garage reduced the street width, leaving no room for a dedicated bike lane. On either side of this block, a popular dedicated bike lane exists that bisects the downtown area

and also connects to the University of Utah. The concept is to make it clear to drivers and bicyclists alike that we wish the bicyclist to take command of the lane by riding in the center of the lane. The street, 200 South, is a 5-lane section, thus drivers have the option to switch to the inside through lanes if they do not wish to ride behind bicyclists for one block. Interviews with bicyclists and drivers has shown very good acceptance of the concept. A follow up report is being prepared to the FHWA indicating our desire to expand this system. Since our test implementation, Long Beach, CA has installed a test of their own. Long Beach uses a wider (6') green lane marking. Salt Lake prefers the 4-foot width because it is only less expensive to install and is not affected by auto tire wear.

## Bike Racks



Salt Lake City has historically provided free bike racks between the sidewalk and curb when a demand was noted. The increase in bicycling has led to an increased demand for racks. We took this opportunity to evaluate the types of racks installed and what we would like to see occur. A committee of engineers, bicycle enthusiasts, the City's Arts Council and Youth City Program crafted a 4-step plan. First, a reasonably priced, commercially available bright red bike rack in the shape of a bike with rider was selected as a new mainstay rack with the idea that it would become a Salt Lake City icon. About half of the racks installed in the City are now this type. Second, we desired to deploy a couple of specialty theme racks each year which will also add to the visual diversity of the downtown. For example, we have installed a bike rack in the shape of music clefs in front of our Symphony Hall. Third, we partnered with the City's Youth City Program to hire students in the program to paint existing ribbon racks in the color and theme of their choosing. The students learned organization skills and responsibility and the City gained colorful restored bike racks. Fourth, we hired a local artist to create "whirligigs" to install next to bike racks such that bicyclists can see them half a block in advance and guide them to the racks. The whirligigs are made out of bicycle wheels that have parking meter caps painted in bright colors attached to the wheels to catch the wind and spin the wheels. These are highly attractive mobiles that the public enjoys seeing.

In 2008, 25 whirligigs and 8 new bicycle racks were installed. 25 bicycle racks were installed in 2009 and a similar number is expected to be installed in 2010.

## Bike Summit

Salt Lake City hosted its first annual bike summit in 2009. Well over 100 attendees participated in triple concurrent sessions to discuss bike route planning, bike laws and enforcement. Planning is underway for the 2010 Bike Summit to be held in May.

## **TRAIL SYSTEM EXPANSION**

The Mayor and City Council wish to see more trails within the city, particularly leading to a trail system with good connectivity. The planning for this is underway. In the meantime, significant funding was provided by the City and via grants for design and construction of several sections of trails. The Jordan River runs northerly through the entire city, emptying into the Great Salt Lake. The highest priority for the City is completion of the trail system along the Jordan River. The river actually begins in Utah Lake in Utah County and runs more than 35 miles between Provo and Salt Lake. Many of the cities along the way have been working diligently to develop their trails and the great majority of the river is now accessible

via a connected trail. A 2-mile section of the trail in Salt Lake was opened in mid-2009. An additional short section was built in late 2009 under Interstate 80 to provide a critical connection. There are two remaining sections to complete the system within Salt Lake City. The very northern section of trail is currently in design and will be constructed this summer using \$650,000 in City and state grant funds. The final section is a difficult crossing of two high speed Union Pacific Railroad tracks. Coordination is underway to seek approval of a bridge design. Simultaneously, an effort is underway to seek \$3 million to fund it.

Other exciting trails to develop include replacing a former and now abandoned railroad line (900 South) with a trail that will serve a residential neighborhood. The City expects to receive ownership of the right-of-way in 2010. The City is also working with the Utah Transit Authority to develop a trail adjacent to a new streetcar line (Sugar House) that is currently in design. This will be a crucial link connecting several major trail systems.

## WHAT'S NEXT?

In late 2008, Salt Lake City adopted *Downtown in Motion*, transportation master plan 18-months in development and specifically focused on its downtown area. It recognizes that downtown is rapidly changing. Condominiums are developing at a fast pace which is bringing a 24/7 population and families to our downtown. Their transportation needs are necessitating improving transit, pedestrian and bicycle modes of travel. The plan contains 101 specific recommendations to be implemented over the next 20 years.

The plan calls for adding midblock crosswalks to provide increased circulation and break up the very long blocks downtown. It is likely HAWK signals will be installed at many of these crosswalks. Plans call for adding two miles of green shared lane marking downtown on city streets not able to handle dedicated bike lanes. We are embarking on a program to upgrade pedestrian push buttons at traffic signals to ones with audible and latching light confirmation features. Funding has been requested to update existing pedestrian wayfinding signage. The City will be discussing willingness to allow bicycling on sidewalks downtown in a controlled manner that still provides pedestrians the right-of-way, but recognizes that children and recreating adults may not feel comfortable riding on the street.

Additionally, a design is underway for a light rail line center-running in a major arterial connecting downtown and its airport. Part of the design includes the addition of on-street bikelanes plus 10-foot wide sideway pavement intended for a combination of walking and bicycling use. Bicycle signals will be installed in addition to pedestrian signals at intersections.



The concept of a traffic garden similar to those in many European cities is being studied to incorporate in the city's government complex that includes city hall, the main city

library and a new public safety building. The traffic garden will be a scaled down version of streets, intersections, bike lanes and sidewalks where classes can be given to teach children the rules of the road and safe bicycling and walking practices.

The city will also be exploring the possibility of adding bicycle boulevards to connect residential neighborhoods. These “boulevards” will use existing streets with low traffic volumes that will have bike friendly features and traffic controls to assist bicyclists in crossing major streets.

A partnership developed with the City’s Public Utilities department will also allow exploration of developing trails along many water and drainage canals.

## **CONCLUSIONS**

Many of the pedestrian safety initiatives and on-street bike lanes described in this paper are relatively inexpensive to implement and popular with the public.

The increased community-wide interest in pedestrian safety and bicycling opportunities has presented an unprecedented opportunity to expand these modes of travel which, in turn, helps improve air quality and transit use as well as reduce traffic congestion.

## **REQUEST FOR COLLABORATION**

The Salt Lake City Transportation Division intends to continue developing and implementing new pedestrian safety initiatives and bicycle and trail facilities for the benefit of the community. We welcome collaboration with other communities. Please feel free to contact Dan Bergenthal, Trails Coordinator or Becka Roof, Ped/Bike Coordinator or Tim Harpst, Transportation Director with your ideas at:

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