

ADA SIDEWALK TRANSITION PLAN AND INVENTORY

CITY OF ST. CHARLES, MO



PROJECT OVERVIEW

- ∅ The City of St. Charles is located along the banks of the Missouri River, with over 400 miles of sidewalks covering 20 square miles of land. To ensure that the sidewalk system functions and meets the needs of all users, a proactive approach was taken to establish an ADA Transition Plan and inventory the sidewalk network to identify and prioritize needed improvements. An automated inventory and evaluation system was developed and integrated with the City's Geographic Information System (GIS).

- ∅ The ADA Transition Plan consisted of two major parts, establishing the administrative policy to comply with Title II of the American with Disabilities Act of 1990 and the self evaluation of the existing sidewalk system. The administrative policy provides the necessary guidelines and standards needed to maintain and improve the sidewalks while the self evaluation focuses on implementation of these guidelines and standards on the existing system. One of the goals of the project was to develop an effective tool that would not only increase efficiency during the inventory process, but would streamline future budgeting and planning efforts. This was achieved by using a customized mobile GIS data collection unit to seamlessly transfer field information directly into a database that was integrated into the City's GIS system. This has allowed the City to review the sidewalk network and develop long range planning by prioritizing improvements by simply running a report, which eliminates hours of staff time in the field.

- ∅ The City worked with the community at large and citizens with disabilities in establishing the Plan's priorities for upgrading pedestrian accommodations. The City also posted a survey on their website to gain knowledge from the residents on how and where they use sidewalks. The survey also allowed us to gain knowledge on what was important to the residents in respect to accessibility.



- ∅ Accessible sidewalks promote pedestrian travel by providing safe routes to various destinations throughout the city. This provides accessibility for all users, promotes physical exercise, reduces dependency on automobiles, encourages support of local businesses, and increases interpersonal communications between neighbors.



EQUIPMENT USED FOR DATA COLLECTION

- ∅ 2' Digital Level
- ∅ Tape Measure
- ∅ Trimble GeoXH GPS unit

DATA COLLECTION PROCESS

- ∅ Collecting the condition and compliance information for over 400 miles of sidewalk and over 15,000 wheel chair ramps is challenging. More importantly, the ability to process and sort the data must be efficient and effective. Using the mobile GIS to collect the data allows the City to consistently update the sidewalk inventory as projects are completed, giving an up-to-date report on the needs of the community. The mobile GIS also standardized the data collection process with custom, pre-formatted data and drop down menus. The drop down menus include pre-set entries to provide consistency in the data collection process. Photos were taken and linked to the data collected to provide a visual representation of the deficiencies allowing the City to view existing conditions from the office instead of traveling to visually inspect the existing ramps.

- ∅ Since it is not practical or cost effective to immediately improve all of the deficiencies encountered on over 400 miles of sidewalk, drop-down menus were designed to collect a range of information for each segment and ramp (i.e. the cross slope ranges included less than 2%, 2% to 5%, 5% to 8%, and greater than 8%). The identified barriers were based on ADA published compliance guidelines for sidewalks and curb ramps. Through community surveys and coordination with local ADA advocacy groups each barrier was assigned a numerical value or factor to differentiate the potential negative impact to the public. The score generated from the barrier evaluation was combined with an activity factor to complete the scoring on a particular segment or ramp. The significance of the activity factor associates the sidewalk or curb ramps proximity to various pedestrian traffic generators. This allows the City to add a weighted score to known pedestrian traffic generators such as government facilities, bus stops and schools. By automating the impedance scores and activity factor, the process can be applied to any community, while allowing each community to customize the scoring system to address their individual needs and priorities.

- ∅ Collecting data for over 400 miles of sidewalk requires a substantial amount of manpower. College interns were utilized to minimize costs. The scoring system was designed to collect the necessary data and remain simple enough for various experience levels to operate with consistent results. If the data is not consistent throughout the groups, it would be impossible to have an objective comparison between various segments. This was accomplished by utilizing a menu with specific, predetermined ADA data to be collected at each point. Each specific compliance criteria had a drop-down menu on the GPS unit of preset options to maintain the needed consistency.

COLLECTED ATTRIBUTES

Attributes

Obstructions

- Broken Sidewalk

OBJECTID	19065
Fixed Obstruction	Broken Sidewalk
Encroachments	<Null>
Vertical Displacements	<Null>
Driveway slope	<Null>
Photo	
SeeNotes	
Obstruction Width	6
Obstruction Length	6
Clear Width	<Null>

OBJECTID
Object ID
Null values not allowed

Attributes

End of Sidewalk Segment

- Concrete

OBJECTID	19158
Sidewalk surface	Concrete
Type of Curb	Rolled curb
Greenspace	No greenspace
Condition	Fair Condition
Width of sidewalk	5-6'
Cross slope	>5% Slope
Running slope	Matches road slope
Gratings	<Null>
Flangeway gaps	<Null>
Notes	<Null>

OBJECTID
Object ID
Null values not allowed

Attributes

ArcGIS.STCH.Sidewalks_Curb_Ramps

- Concrete

OBJECTID	5326
Surface Material	Concrete
Type of Ramp	Parallel
Condition	Fair Condition
Slope of Gutter	<5% Slope
Detectable Warning Panels	No Panels
Dimensions of Landing	>= 4' x 4'
Vertical Displacement	<Null>
Slopes at landing	>2%
Width of Crosswalk	Crosswalk not striped
Alignment of Crosswalk	Skewed
CW Running Slope	less_than_5
CW Cross Slope	>5%
Pictures	PICTURES_0001.jpg
Notes	
Running Slope	<8% Running Slope
Cross Slope	>5% Slope
Flare Slope	<Null>
Ramp Width	>8'
Ramp Length	3'-4'
Fixed Obstruction	<Null>
Encroachments	<Null>
City_Asset_Number	G4-RMP-092
Map_Book_Page	G4

OBJECTID
Object ID
Null values not allowed

ANALYSIS

- ∅ The use of geospatial analysis allows the City to look at its pedestrian system in its entirety and objectively analyze future improvements within the City. Buffer areas were created around each pedestrian traffic generator. A numerical value was assigned to each sidewalk segment or curb ramp based on its proximity to the various pedestrian traffic generators. Each individual sidewalk segment or curb ramp was ultimately assigned an activity factor that varied from 1 to 2, which represented its proximity to all pedestrian traffic generators. The activity factor was multiplied by the impedance score to get the final score of each segment or ramp.

- ∅ The impedance score was calculated by creating script files to autonomously assign a numerical value to each deficiency created using the mobile GIS unit. The drop-down menus led to consistent input which made the creation of these script files possible. The obstructions were calculated into the final score of the sidewalk segments by analyzing the quantity of obstructions per given length of segment.

- ∅ As the City continues to grow and as new sidewalk segments are constructed it will be necessary to update the Sidewalk Inventory to reflect these changes. Through the mobile GIS units new data can be collected and uploaded to the existing Sidewalk Inventory. This data will be scored using the same criteria as the original inventory providing consistent scoring regardless of the date of collection. If ADA regulations change the script files can be updated to reflect these changes and allow the City to determine if the existing system meets the new standards.

- ∅ By incorporating the field data into GIS allows the City to create color coded maps that highlight the deficiencies within the sidewalk system. These maps have been used in federal grant applications to highlight needs and visually illustrate the existing condition.







