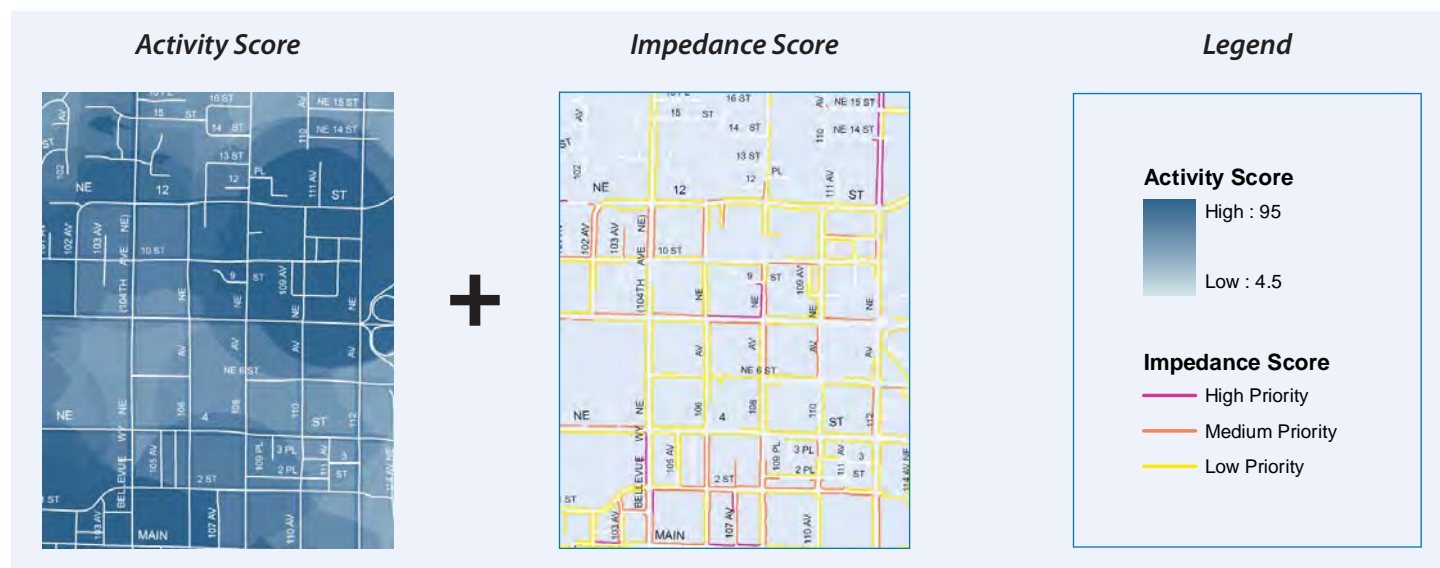




# Executive Summary

## Barrier Ranking

Supporting the City in prioritizing barrier remediation efforts is a GIS-based analysis that results in a combined activity and impedance score for every sidewalk and curb ramp in Bellevue. A high activity score is representative of areas where pedestrian activity (especially among persons with disabilities) is likely to be greatest, based on demographic, land use, and transportation conditions. A high impedance score is representative of areas where the quality of existing pedestrian infrastructure is poor for persons with disabilities, based on barriers documented in the sidewalk and curb ramp inventory. The key principle here is to assign a high ranking on a needs basis, not necessarily to the sidewalks and curb ramps in the worst condition but rather to those that would provide the most benefits to people with disabilities.



*A number of mechanisms are in place to make sidewalks accessible to people with disabilities, including sidewalk maintenance, curb ramp retrofit, and pavement overlay programs. In addition, the city incorporates ADA improvements into its capital projects and as permit conditions for development.*

## Implementation

This report provides the foundation to the Transportation Department's ADA Transition Plan Update. Bellevue's ADA Transition Plan references the barrier rankings of non-standard pedestrian facilities documented in the ADA Sidewalk and Curb Ramp Self-Evaluation Report to identify corrective measures in the city's public rights-of-way. Recognizing that the City has limited funds and cannot immediately make all sidewalks and curb ramp facilities fully accessible, the City's ADA Transition Plan sets forth the schedule for making access modifications.

## For more information:

The ADA Sidewalk and Curb Ramp Self-Evaluation Report is located at: <http://www.bellevuewa.gov/accessibility-reports.htm>

The project manager, Franz Loewenherz, can be reached at 425-452-4077 or [FLoewenherz@bellevuewa.gov](mailto:FLoewenherz@bellevuewa.gov)

# ADA Self-Evaluation Report



## Executive Summary

### Plan Purpose

The City of Bellevue is a community of 120,000 residents. According to the 2000 Census, approximately 15 percent of Bellevue residents live with a developmental, physical, or mental disability. As the population continues to age, the number of people with disabilities is expected to increase.

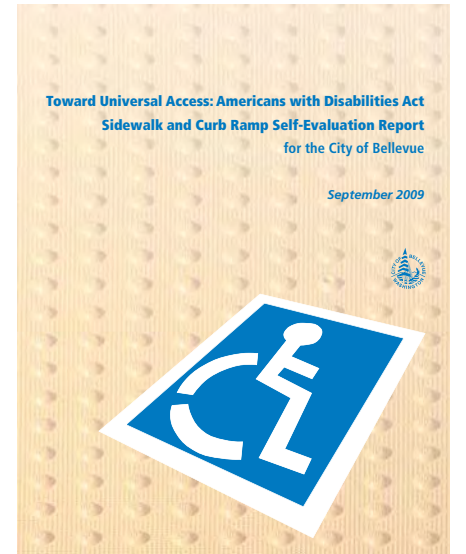
Access to civic life by persons with disabilities is a fundamental goal of the Americans with Disabilities Act (ADA). In support of this goal, the City of Bellevue's ADA Self-Evaluation Report is a comprehensive analysis of the City's existing sidewalk and curb ramp facilities. Data collected from this assessment enables city staff to: (i) determine if a sidewalk or curb ramp meets intended design specifications and guidelines; (ii) catalog feature and maintenance information; (iii) identify portions of sidewalks needing accessibility improvements; (iv) quantify the extent of the work required; and, (v) add pedestrian information to the City's Geographic Information Systems (GIS) database.

The report outcomes were informed by an extensive public outreach effort that provided a wide range of stakeholders from the disability community with improved access to the decision-making process. The outreach effort included surveys, focus groups, public meetings, and conversations with residents at sidewalk and curb ramp locations. The ranking of barriers in this process responds to the self-stated needs of people with disabilities in the community.

## Project Approach

In undertaking this asset data inventory and condition assessment, the City employed innovative technologies to document barriers and prioritize improvements where they are most needed. The technology, developed through a pilot program with the Federal Highway Administration, uses an Ultra-Light Inertial Profiler (ULIP) mounted on a Segway scooter. The device's lasers, accelerometers, and gyroscope are designed to measure the sidewalk surface at a rate of 10,000 records per second capturing highly accurate information about slope and small surface variations that can make a sidewalk difficult to navigate. A tray and handle bar mount support a notebook computer that offered an interactive, real-time display during data collection. The accompanying software produced a text file compatible with the City's GIS asset management database.

The technical precision offered by Bellevue's approach is identified as a best practice in ADA Compliance at Transportation Agencies: A Review of Practices (NCHRP 20-07 Task 249), a Texas Transportation Institute study. The report notes that "[e]fforts such as those at the City of Bellevue, Washington, that rely on the collection of large datasets at extremely fine spatial and temporal disaggregation levels have the potential to significantly automate the identification of non-compliant locations



*The City of Bellevue is committed to establishing an accessible community that provides the public with transportation choices and independent mobility regardless of age, physical constraint, or income.*



*City of Bellevue's ULIP and Segway Human Transporter equipment.*





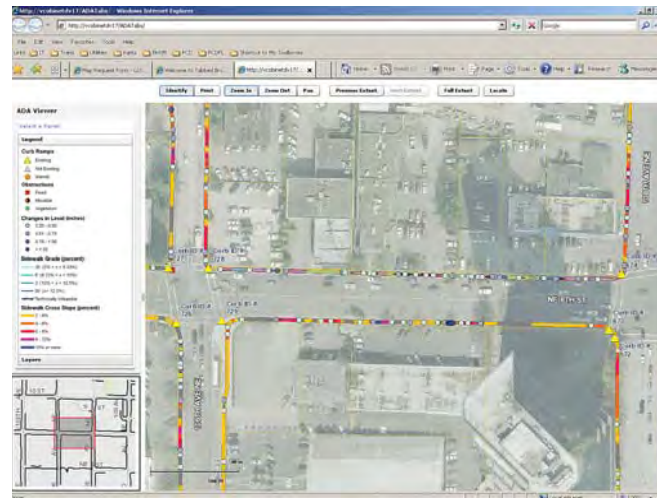
# Executive Summary

in the field.” GIS played a pivotal role in the project from data acquisition (organizing the millions of data points generated during the study) to creating a web-based mapping interface for asset management and compliance monitoring. The result is a mapping interface on the City’s intranet that documents all non-standard data points related to sidewalks and curb ramps. The ADA viewer interface creates a platform from which city staff retrieve information on barriers in the public right of way, informing the City’s corrective measures on where to make repairs to sidewalks and curb ramps.

The following is a summary of barriers documented in the report.

## Sidewalk Data

- 1. Sidewalk facilities** (Total: 321 miles)
  - Concrete surfaces: 298 miles
  - Asphalt/brick/other surfaces: 23 miles
- 2. Sidewalk obstructions** (Total: 6,944 instances)
  - Fixed obstructions: 226 instances
  - Movable obstructions: 722 instances
  - Vegetative obstructions: 5,996 instances
- 3. Sidewalk changes in level** (Total: 27,558 instances)
  - 0.25" - 0.5": 20,002 instances
  - 0.51" - 0.75": 7,014 instances
  - 0.76" - 1": 274 instances
  - > 1": 268 instances
- 4. Non-standard sidewalk grade** (Total: 39 miles)
  - 5% - 8.33%: 32 miles
  - 8.34% - 10%: 4 miles
  - 10.1% - 12.5%: 2 miles
  - Deemed technically infeasible: 95 miles
- 5. Non-standard sidewalk cross slope** (Total: 212 miles)
  - 2 - 4%: 134 miles
  - 4.1 - 6%: 49 miles
  - 6.1 - 8%: 15 miles
  - 8.1 - 10%: 7 miles
  - > 10%: 7 miles
- 6. Sidewalks with either a non-standard cross slope or grade**
  - Including grade deemed technically infeasible: 254 miles
  - Excluding grade deemed technically infeasible: 225 miles



Screen-shot image of ADA mapping viewer interface.



Fixed obstructions.



Change in level.



Vegetation and grade barriers.

# ADA Self-Evaluation Report



## Curb Ramp Data

- 1. Ramp type data**
  - Ramp locations: 4,586
  - Sidewalk locations lacking ramp access (non-standard): 1,041
- 2. Non-standard returned curb locations**
  - Total: 11
- 3. Flare data**
  - Slopes  $\leq$  10% (standard): 457
  - Slopes between 10.1% - 12% (non-standard): 225
  - Slopes > 12% (non-standard): 765
- 4. Ramp landing panel data**
  - Depth greater than or equal to 48" (best practice): 2,276
  - Depth between 36" - 48" (standard): 283
  - Depth smaller than 36" (non-standard): 161
  - None present (non-standard): 791
  - Slopes > 2% (non-standard): 2,791
- 5. Ramp panel data**
  - Width greater than or equal to 48" (best practice): 2,211
  - Width between 36" - 47" (standard): 1,199
  - Width < 36" (non-standard): 101
  - Running slope < 8.3% (standard): 1,525
  - Running slope between 8.31% - 10% (non-standard): 686
  - Running slope > 10% (non-standard): 1,300
  - Cross slope  $\leq$  2% (standard): 1,095
  - Cross slope between 2% - 4% (non-standard): 1,006
  - Cross slope > 4% (non-standard): 1,410
  - Ramps with both running slope > 10% (non-standard) and cross slope > 4% (non-standard): 593
- 6. Gutter data**
  - Running slope  $\leq$  5% (standard): 2,362
  - Running slope > 5% (non-standard): 1,149
  - Cross slope  $\leq$  2% (standard): 1,302
  - Cross slope > 2% (non-standard): 2,209
  - Non-standard gutter/ramp transitions: 713
- 7. Ramps lacking detectable warning surface (non-standard)**
  - Total: 2,557
- 8. Marked crossings**
  - Ramps without marked crossings: 2,869
  - Ramps with one marked crossing: 500
  - Ramps with two marked crossings: 142
  - Diagonal ramps lacking 48" clear space (non-standard): 78



Steep driveway cross slope.



Missing ramp.



Barrier forces street use.



No ramp landing panel.



Steep ramp running slope.