WEB MAPS FOR REAL-WORLD ACCESSIBILITY

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W3C/OGC Joint Workshop Series on Maps for the Web
w3.org/2020/maps/
Can I get in?

Example: Many places have steps at the entrance, which is a barrier for wheelchair users.
Wheelmap.org – find accessible places
“Traffic lights” system

How wheelchair accessible is a place?

- Fully
- Partially
- Not at all
### Available in 32 languages

<table>
<thead>
<tr>
<th>Arabic</th>
<th>English</th>
<th>Italian</th>
<th>Russian</th>
<th>Portuguese (Brazilian)</th>
<th>Ukrainian</th>
<th>Vietnamese</th>
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</thead>
<tbody>
<tr>
<td>Bulgarian</td>
<td>Finnish</td>
<td>Japanese</td>
<td>Slovak</td>
<td>Portuguese</td>
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<td>Chinese (Taiwan)</td>
<td>French</td>
<td>Korean</td>
<td>Spanish</td>
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<td>Chinese (Traditional)</td>
<td>German</td>
<td>Norwegian</td>
<td>Spanish</td>
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<td>Greek</td>
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<td>Dutch</td>
<td>Hungarian</td>
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</tbody>
</table>
Based on OpenStreetMap.
Around one million OSM-based places.

Marked as fully, partially, or not wheelchair-accessible by users.
Does this mean equal participation?
We need disability mainstreaming:
All accessibility information should be available everywhere.
Maps4Web as disability mainstreaming?

Could we use Maps4Web specs to make accessibility information available everywhere?
Where to get physical a11y data?

OpenStreetMap → Hotel → Way → Subway station
Where to get physical a11y data?

wheelmap.org
Where to get physical a11y data?
Where to get physical a11y data?

accessibility.cloud

https://accessibility.cloud
Where to get physical a11y data?

$ curl -v https://accessibility-cloud.freetls.fastly.net/place-infos.json?appToken=YOUR_APP_TOKEN_HERE&latitude=48.2435&longitude=16.3974&accuracy=1000&includeSourceIds=QGf3sjbSxSpkeNHFm&includeRelated=source | jq .
Where to get physical a11y data?
79 organizations

...contribute 1.3M places and 3.8K real-time elevators to Wheelmap via accessibility.cloud.
Accessibility vocabulary varies...

“Washroom”
“Restroom”
“Toilet”
“Bathroom”
…so we need to harmonize data.

A11yJSON

https://a11yjson.org
A11yJSON example

```json
{
    "geometry": { "type": "Point", "coordinates": [2.376757, 48.898991] },
    "properties": {
        "category": "cinema",
        "name": "Ciné XY",
        "accessibility": {
            "entrances": [
                { "name": "30th St", "isMainEntrance": true, "isLevel": false },
                { "name": "Side gate", "hasFixedRamp": true }
            ],
            "accessibleWith": {
                "wheelchair": true
            },
            "animalPolicy": {
                "allowsGuideDogs": true
            }
        }
    }
}
```

[https://a11yjson.org](https://a11yjson.org)
A11yJSON interface specs

Accessibility | AnimalPolicy | Elevator | Escalator | FoldingHandles
Ground | Media | Mirror | Parking | Pathways | Payment
PersonalProfile | PlaceInfo | Quantity | Ramp | Restroom | Room
Shower | Staff | Stairs | Tables | Toilet | WashBasin
WheelchairParking | WheelchairPlaces

https://a11yjson.org
A user doesn’t want this...

(Data about the same place from different sources/websites)
...but this.

(= All data discoverable in the same UX context)
This is what Linked Data is for.

https://schema.org
So... how to describe physical a11y?

This is not standardized yet.
Example 1: Allow semantic info in MapML

```xml
<mapml>
  <head>...</head>
  <body>
    <feature vocab="https://schema.org" typeof="Place">
      <meta property="name" content="An awesome hotel 🏨" />
      <meta property="amenityFeature" typeof="LocationFeatureSpecification">
        <meta property="name" content="Wheelchair-accessible Sauna" />
        <meta property="value" content="True" />
      </meta>
    </feature>
  </body>
</mapml>
```

https://github.com/Maps4HTML/MapML-Proposal
Example 2: Add A11yJSON in CityJSON

"CityObjects": {
  "id-1": {
    "type": "Building",
    "children": ["id-2"]
  },
  "id-2": {
    "type": "BuildingPart",
    "parents": ["id-1"],
    "accessibility": {
      "accessibleWith": {
        "wheelchair": true
      }
    }
  }
}

https://cityjson.org
- Ranking places by accessibility incentivizes businesses to improve their accessibility
- Colorize place markers using a traffic light system (green = accessible, red = not accessible)
- Add indoor map context links to places
- Augment maps with accessibility features and hazards:
  - accessible toilets
  - elevators (with realtime operational status)
  - (in)accessible sidewalks, ramps, and stairs
  - environment noise levels
- Allow voice assistants to understand what map features mean
Health profiles and privacy

- A11y features need an extra layer of protection
- Like location, accessibility augmentation should be allowed/denied on a per-website basis
- Browsers / plugins should not reveal a user’s health conditions to websites
User intent vs. map author intent

- ARIA labels as hints for assistive tech
- Example declarations:
  - “The visual style of this <feature> is important to understand the map content”
  - “This <map> is a geodata visualization”
  - “This <map> is made for discovering places”
How you can help

Participate in schema.org GitHub Issue #254!

We should provide some simple properties to describe the accessibility characteristics of places (do restaurants have a wheelchair-accessible entry? What about toilet? Is there enough guidance for a blind person to find their way around a train station with a cane? Is there an assistance service available?...)

Assignees

danbri

Labels

no-issue-activity

schema.org vocab

status:work expected
How you can help

Participate in the W3C LDA CG!
How you can help

Give A11yJSON a ⭐ on GitHub!
How you can help

Add place and elevator/escalator realtime datasets on accessibility.cloud!
THANK YOU!

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