

Stanisław Godlewski  
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## **Remodeling sidewalks and hiking trails within and around Riverside Park with ArcGIS.**

### **Introduction**

After analyzing several articles regarding the importance of quant, peaceful, and green spaces for urbanites, I understood that there was a demographic that had to be accounted for. As green spaces such as parks are physical sites, it is vital and ideal for everyone to be able to have feasible access to such privileges. For that reason, I investigated and remodeled certain infrastructures pertaining to Riverside Park for the sake of accommodating the handicapped.

### **Problem Description**

After conducting field investigations at the riverfront and the trails of Riverside Park, I have concluded that there must be extensive remodeling in order to accommodate the needs of the handicapped.

### **Guidelines**

Among people who use a wheelchair, more than 88% considered the accessibility of the park to be "important" or "very important" to them (Błaszczyk 2020, 4). Only 10% of those surveyed said that accessibility was "rather not important" and "moderately important" to them (Błaszczyk 2020, 4). For people with a cognitive disability, the accessibility to the park was also important. More than 82% deemed that accessibility was "important" or "very important" to them, and only 16% indicated that the availability of accessibility was "not really important" and "moderately important" (Błaszczyk 2020, 4). However, the carers/assistants of people with a disability answered differently. More than 62% of the group rated accessibility very high, proving it to be very important to them (Błaszczyk 2020, 4). Only 10% of the carers/assistants indicated that accessibility of the park was moderately important to them (Błaszczyk 2020, 4).

As stated by the UN, the distance required for two wheelchairs to come across concurrently is 150 cm (Güngör 2016, 500). Another handicap standard that is widely agreed on is the Helsingborg ramp standard. In Helsingborg, Sweden the standard insists that a handicap ramp does not exceed more than 0.5 meters in height

difference (Shahraki 2020,178). The standards of the city suggest that the ramp shall be divided into multiple landing sections so that each landing is at least 2 meters (Shahraki 2020,178). In addition, the width of ramps should be at least 1.5 m (Shahraki 2020,178). The ramp standard in Helsingborg, Sweden is the recommended UN guideline regarding the steepness of handicapped ramps (Shahraki 2020,178).

Given these pieces of information, I understood how to differentiate between existing infrastructure that had handicap accessibility issues and existing infrastructure that were already handicap accessible to begin with. We have taken these guidelines into consideration to understand the technicalities of how to sustainably remodel Riverside Park. These technicalities were taken into account in order to minimize error. Otherwise, if our proposals were to be approved and there were unaccounted errors in the recently constructed infrastructure; the decommission costs to reevaluate and redo the proposals would be costly. Nevertheless, the documented infrastructure that was deemed to be handicap accessible can be found below.

### **The Riverfront**

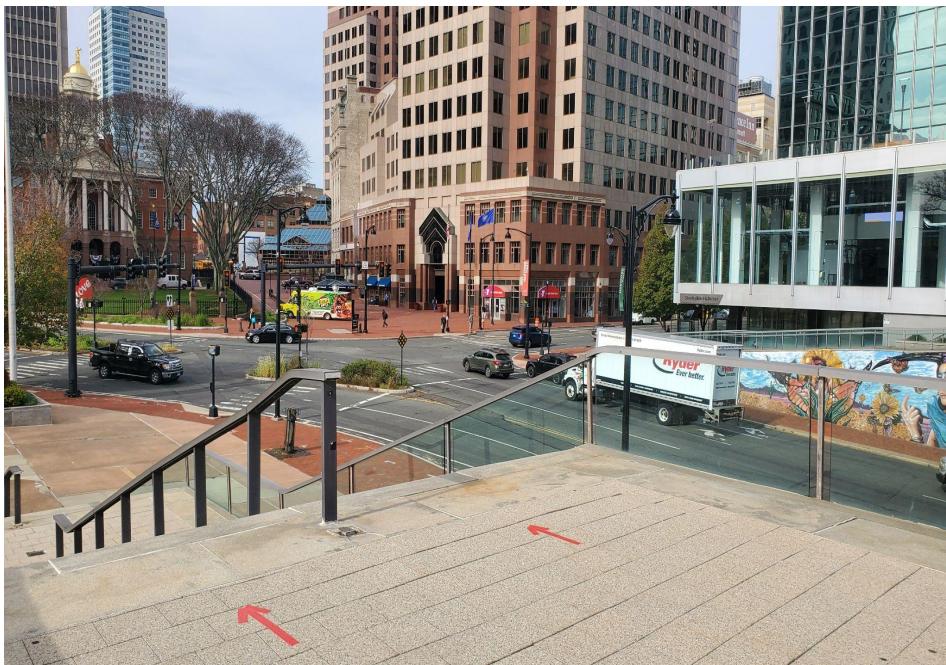
For one to access the riverfront of Riverside Park, elevators and staircases at Science Center and Travelers Plaza are the only way to access the riverfront of Riverside Park without the usage of a motorized vehicle. However, the elevators at the riverfront are only open seasonally. In addition, rough and uneven pavement along walkways toward the Riverfront. Lastly, the riverfront is completely inaccessible from northern downtown.



Source: Picture of the elevator from my camera.



Source: Picture of the surrounding walkway from my camera.



Source: Picture of the surrounding stairs from my camera.



Source: Picture of the surrounding walkway from my camera.

### **The Riverside Park**

As one would travel northward alongside the Connecticut River at Riverside Park, they encounter a few playgrounds, bathrooms and picnic tables. However, they would also encounter steep slants and handicap inaccessible benches. Not only would these obstacles be tedious for the handicapped, but the noisy I-91 would interrupt the quaint and peaceful experience that park enthusiasts yearn for.

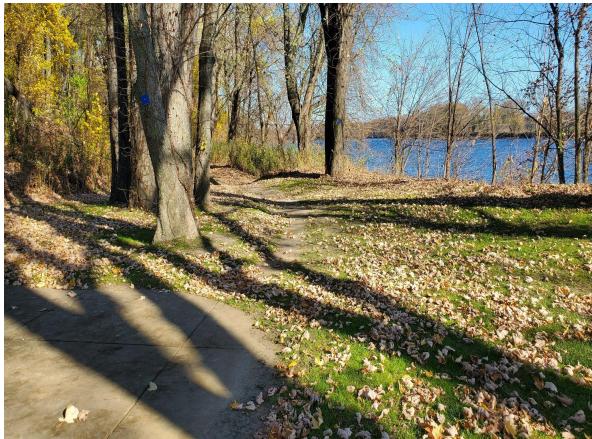


Source: Picture of a bench at Riverside Park from my camera.



Source: Picture of a paved walkway at Riverside Park from my camera.

Fortunately, for those with the ability to walk comfortably, there is an unpaved and unobstructed section of Riverside Park. The entrance to these hiking trails begin at the northern section of Riverside Park, which can be found as one would walk northwards from the Riverfront. However, these trails are unpaved, bumpy, and twig riddled. As such, I deemed these quiet and scenic trails to be inaccessible for the handicapped. Nevertheless, a proposal was drawn out within the hiking section of Riverside Park to ensure that the handicapped could also obtain the same peace and quiet that I experienced when walking through this section of Riverside Park.

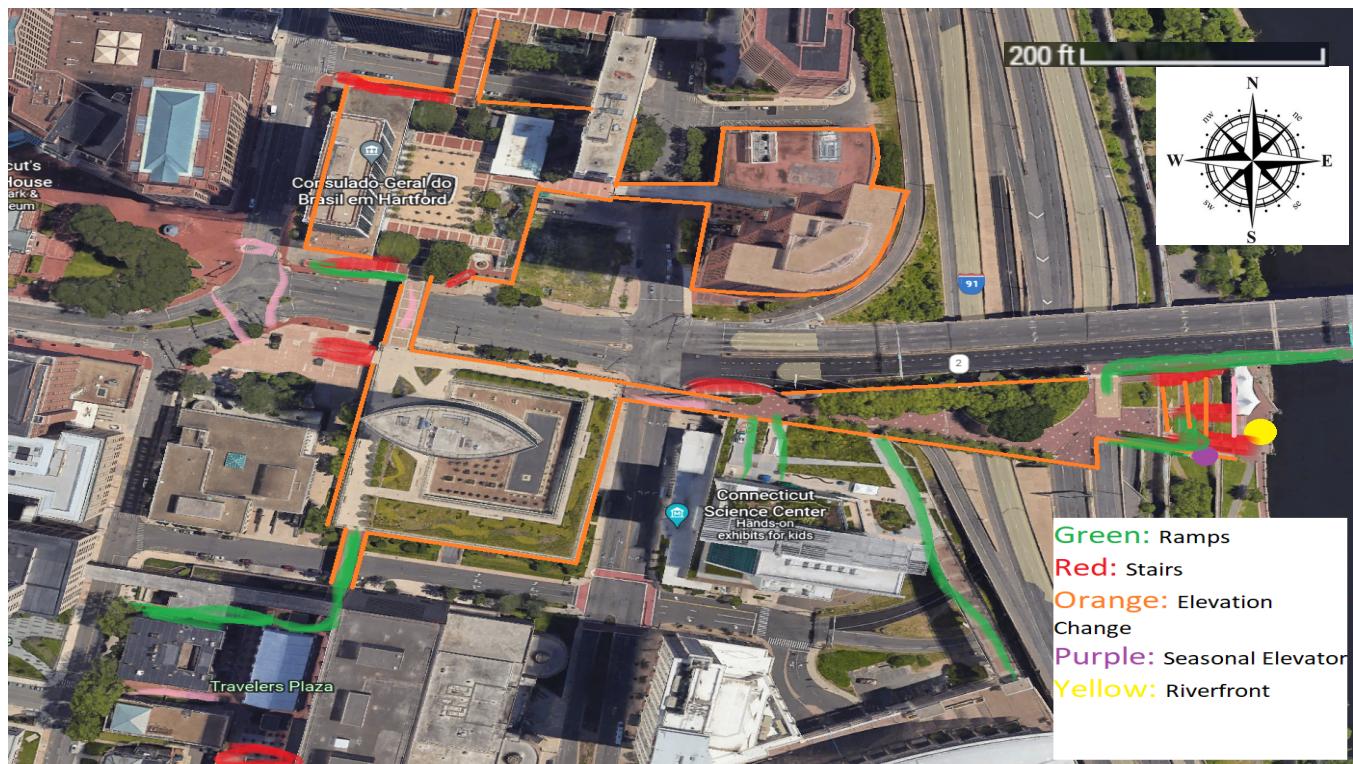


Source: Picture of an unpaved hiking trail at Riverside Park from my camera.

## The Propositions

As one can see, these areas and features are inaccessible for the handicapped. Nevertheless, I have marked areas of the neighborhood that would be ideal to remodel and modify in accordance with the handicapped guidelines from the articles. The proposed ramps have been marked off as green and the elevation changes on the maps have been marked off in orange. Given the contour intervals displaying the elevations, I make sure to model these ramps against low graded gradients so that not only are the handicapped pathways not too steep, but that there won't have to be any significant dampening on certain habitats.

### Proposed modifications:

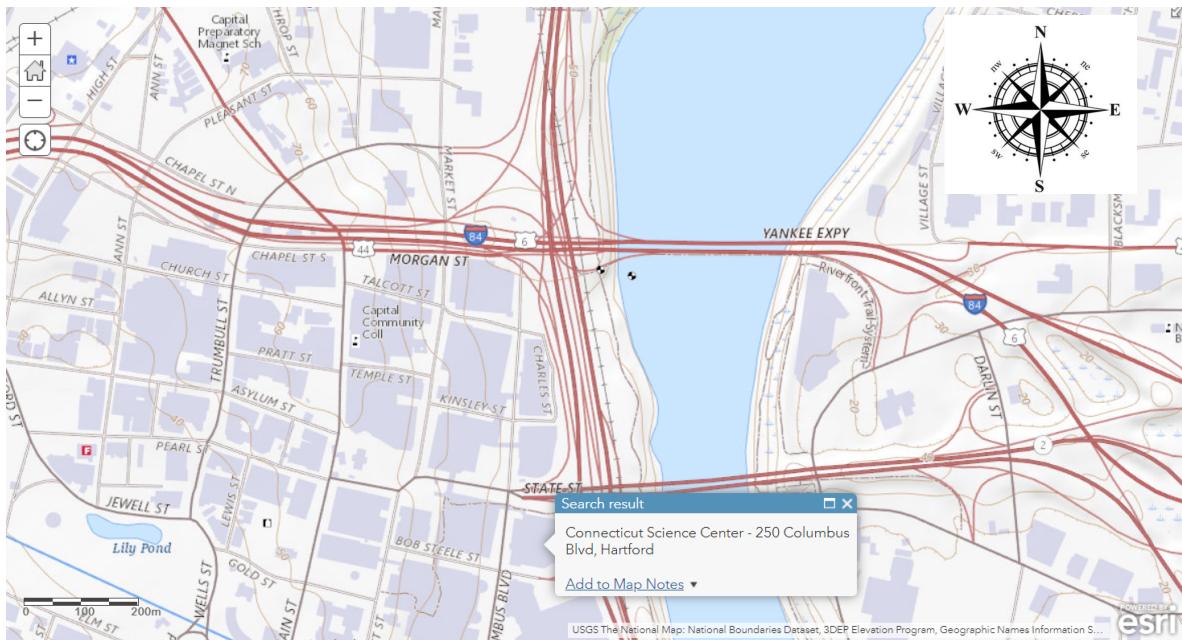


Source: Google Earth Pro (Google, 2022,0).

As one can observe, I have drawn up proposals to add handicap ramps in order to access the riverfront of Riverside Park. The ramps were drawn up with contour intervals from ArcGIS in consideration. These ramps were drawn up with the guidance of the contour intervals surrounding the neighborhood. Because of the guidance of the contour

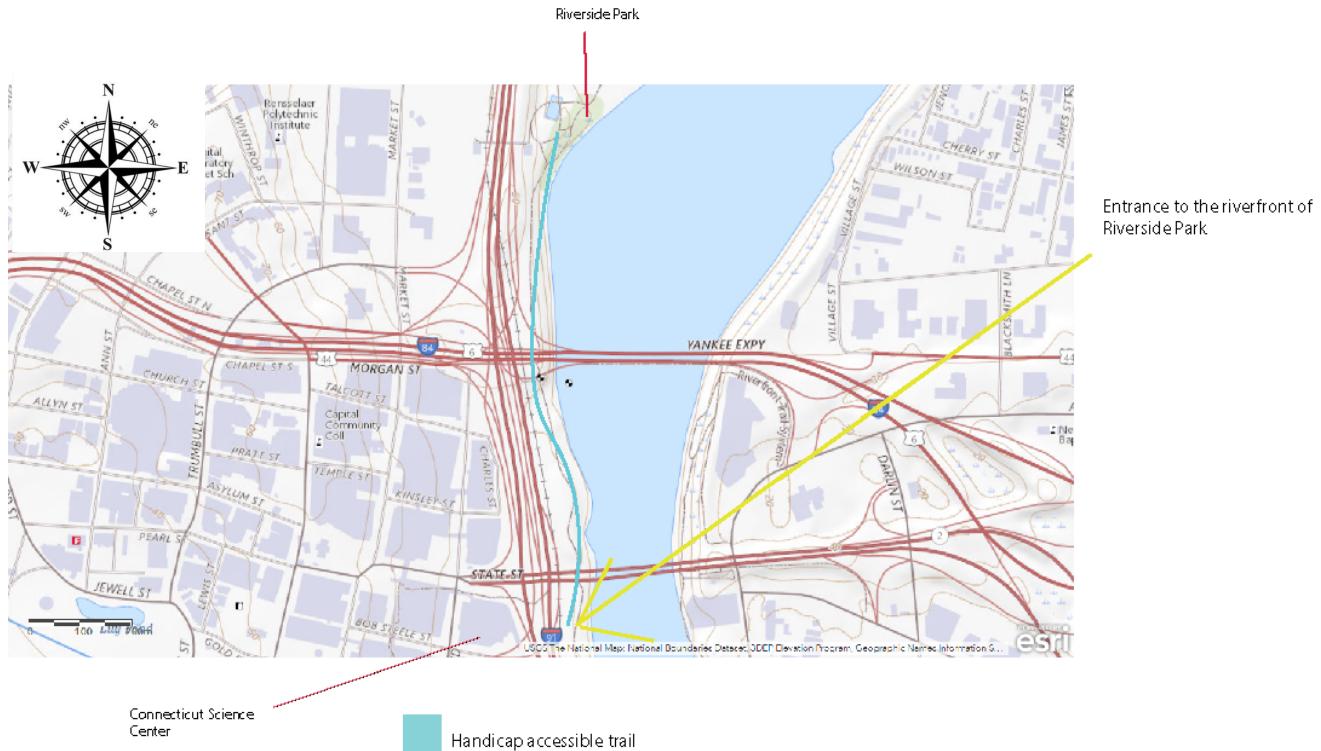
intervals, the proposed pathway abides by the accessibility standards set by the UN. As such, these ramps are gradual enough for one to ascend or descend from with ease.

Below displays the map of the contour intervals surrounding the Connecticut Science Center; where the entrance of the riverfront to Riverside Park lies.



Source: USGS National Map through ArcGIS (USGS National Map 2022,0).

This map directly below shows the already built handicap friendly trail in relation to the contour intervals surrounding the riverfront of Riverside Park.



Source: USGS National Map through ArcGIS (USGS National Map 2022,0).

As seen on the maps below, the handicap friendly trail connects to the parking lot of Riverside Park, which is where the entrance to the hiking trails lies.



Entrance to the riverfront of  
Riverside Park

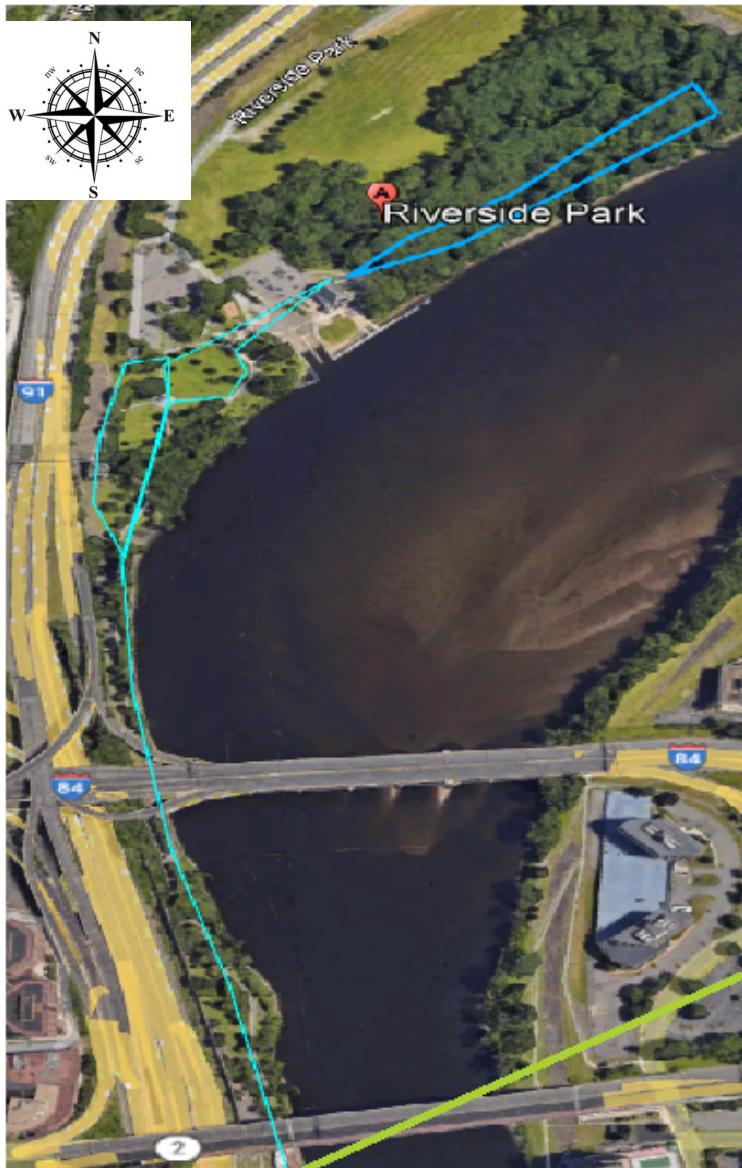
Handicap accessible trail

Source: Google Earth Pro ( Google, 2022,0).

Located below this description are the maps of the proposed handicap accessible hiking trail at the northern section of Riverside Park. The pathway of the proposed trail was drawn up with contour intervals from ArcGIS in consideration. As such, the pathway of the proposed hiking trails was drawn with the guidance of the contour intervals surrounding the neighborhood. Because of the guidance of the

contour intervals, the proposed pathway abides by the accessibility standards set by the UN.

200 ft



Entrance to the riverfront of Riverside Park

Handicap accessible trail

Proposed handicap accessible trail

Source: Google Earth Pro (Google, 2022,0).

While the trees in the map above are blocking off the contour intervals displaying the elevation changes of the hiking trails at Riverside Park, the map below displays the proposed handicap accessible hiking trail with the contour intervals in consideration. The proposed trail was drawn right before the first significant elevation change. To continue building past this elevation change would require excessive decommissioning of the habitat within Riverside Park. This is because the pathway would be too steep for a handicap individual to utilize. Additionally, to level out the hiking trails to accommodate the UN standard would not be sustainable.



Source: USGS National Map through ArcGIS (USGS National Map 2022,0).

In the next page below, the trail map of the hiking trails at Riverside Park is displayed. While there are already trails on this map to begin with, the drawing of the proposed pathway was drawn over a certain section of Pleasure Trail, which is one of the names of the hiking trails. The proposed pathway would be built out of horizontally laid out planks instead of pavement to minimize habitual disturbance and resources. The wooden pathway would loop and connect itself around while having an exit point at the halfway point for those eager to continue hiking after the first significant elevation change. Nevertheless, the wooden pathway would have a UN standard ramp at the

entrance and exit of the pathway.



Source: Riverside Park Map from my camera.

As one can observe, the handicap friendly wooden pathway would start and finish at the same spot. Meanwhile, the new starting point of Pleasure Trail would begin right where the proposed pathway begins to loop back around. The new starting point will be branched off of the wooden pathway as stairs, indicating that this hiking trail is off limits to the handicapped for safety concerns. The yellow trails that once connected itself to Pleasure Trail would now be connected to the proposed trail. As such, there will also be stairs branching off from the wooden pathway, connecting to the connector trails. As mentioned before, these stairs would indicate that the connector trails are off limits to the handicapped for safety concerns.

## Conclusion

To conclude, the proposed infrastructure would increase the satisfaction and quality of life for those that are unable to experience the same physical privileges as others. With the correct protocol and procedures, handicap accessibility throughout certain sections of Riverside Park is feasible after all.

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