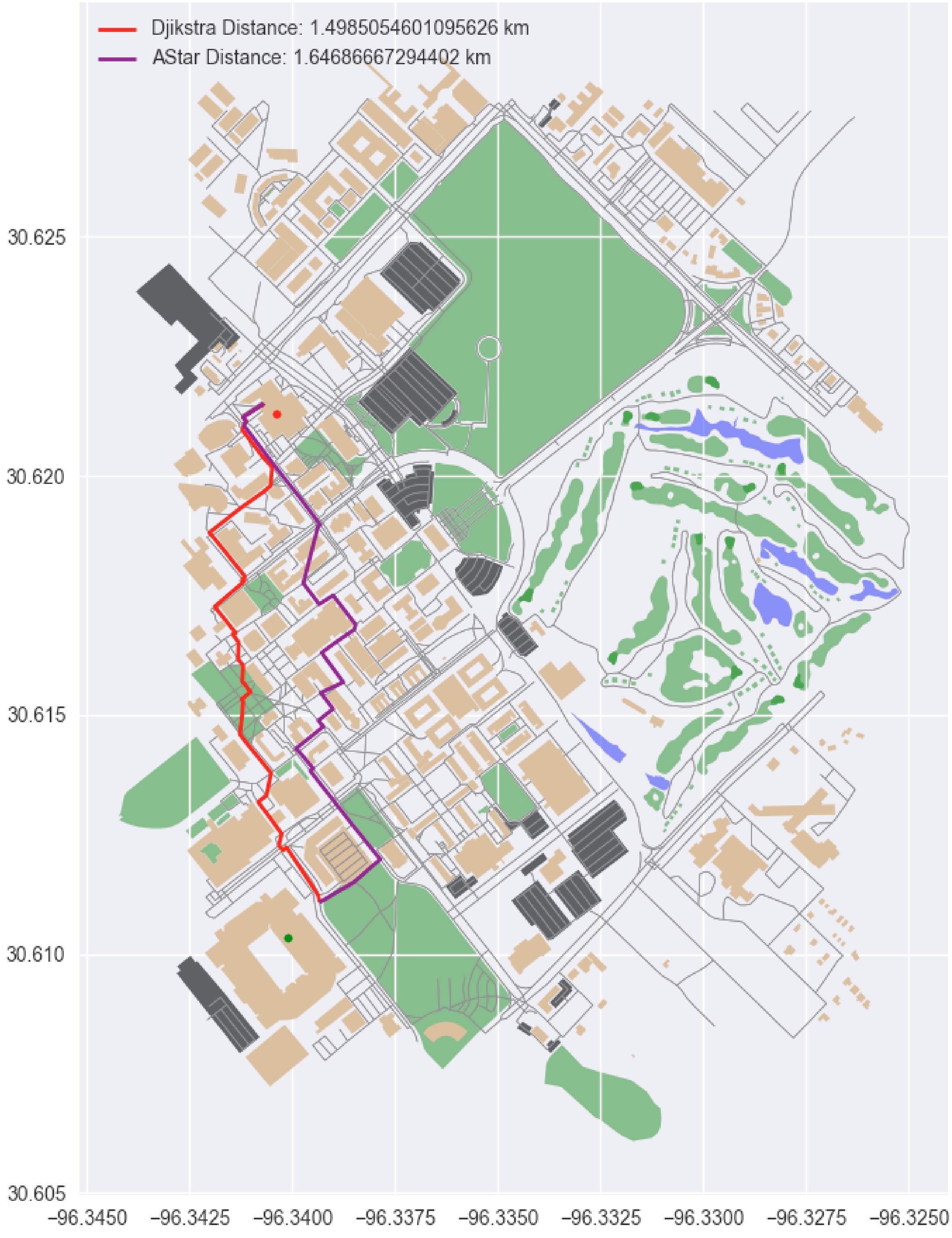
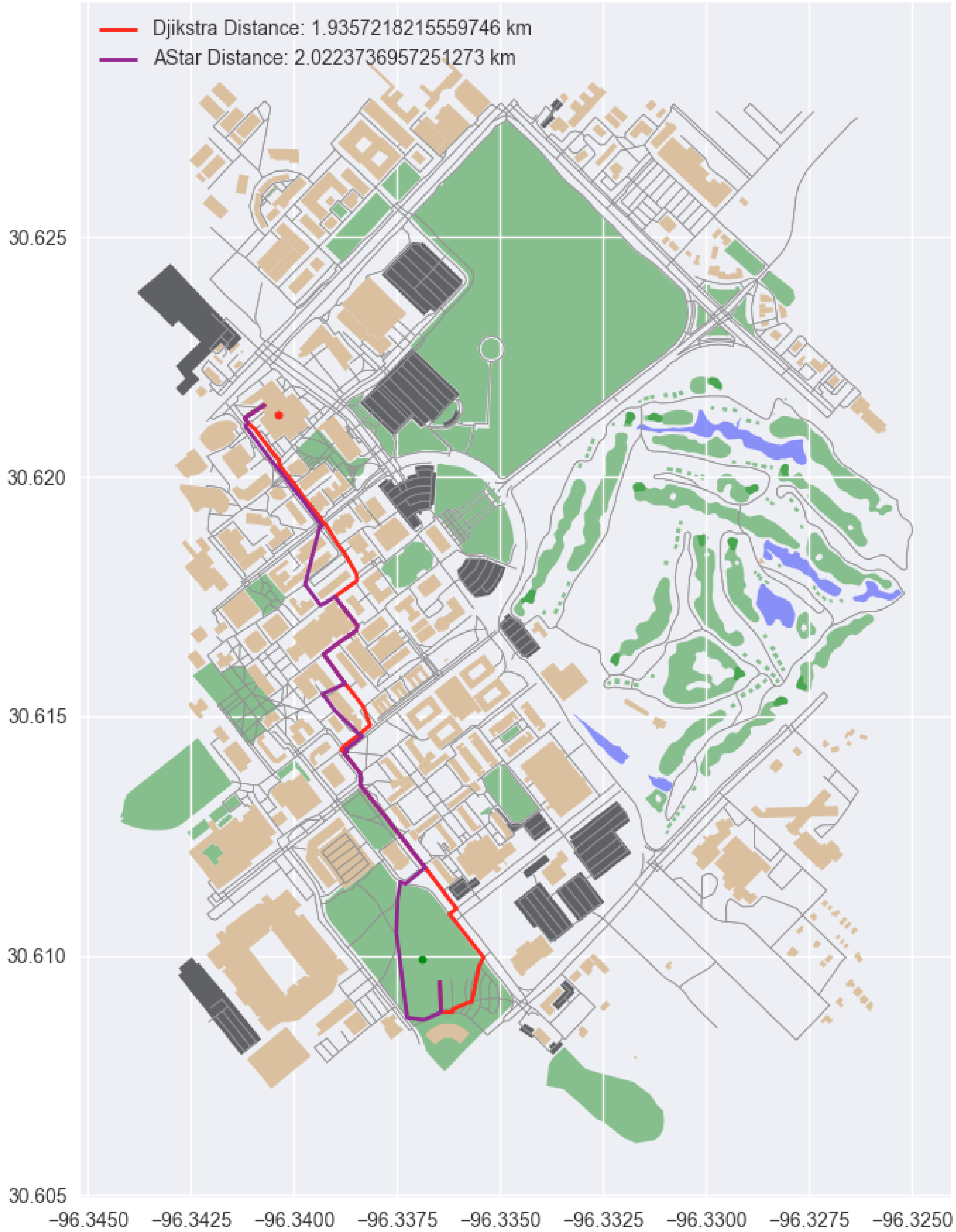
Zach to Kyle



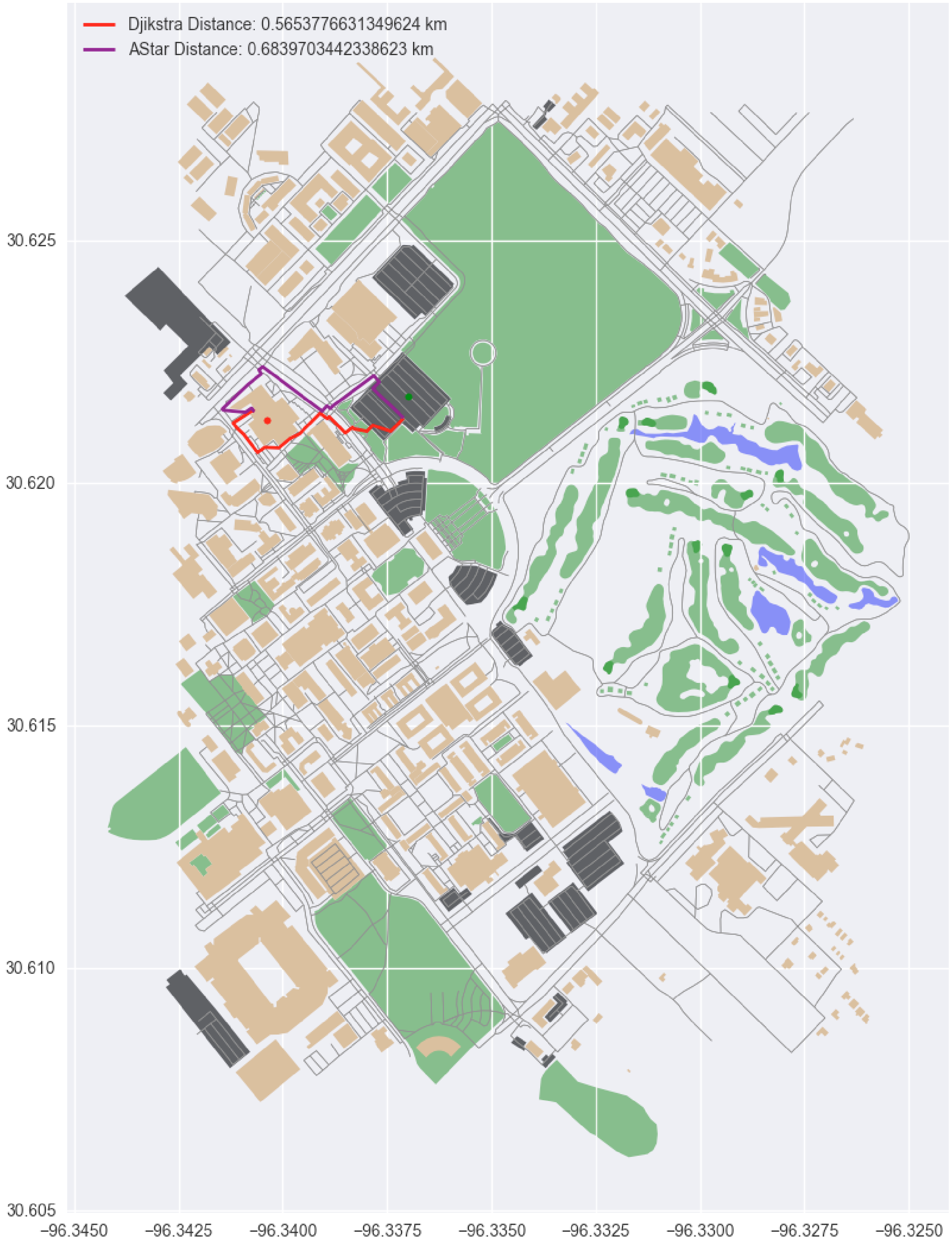
AStar has less efficient path and greater distance. Djikstra wins

Zach to Aggie Park



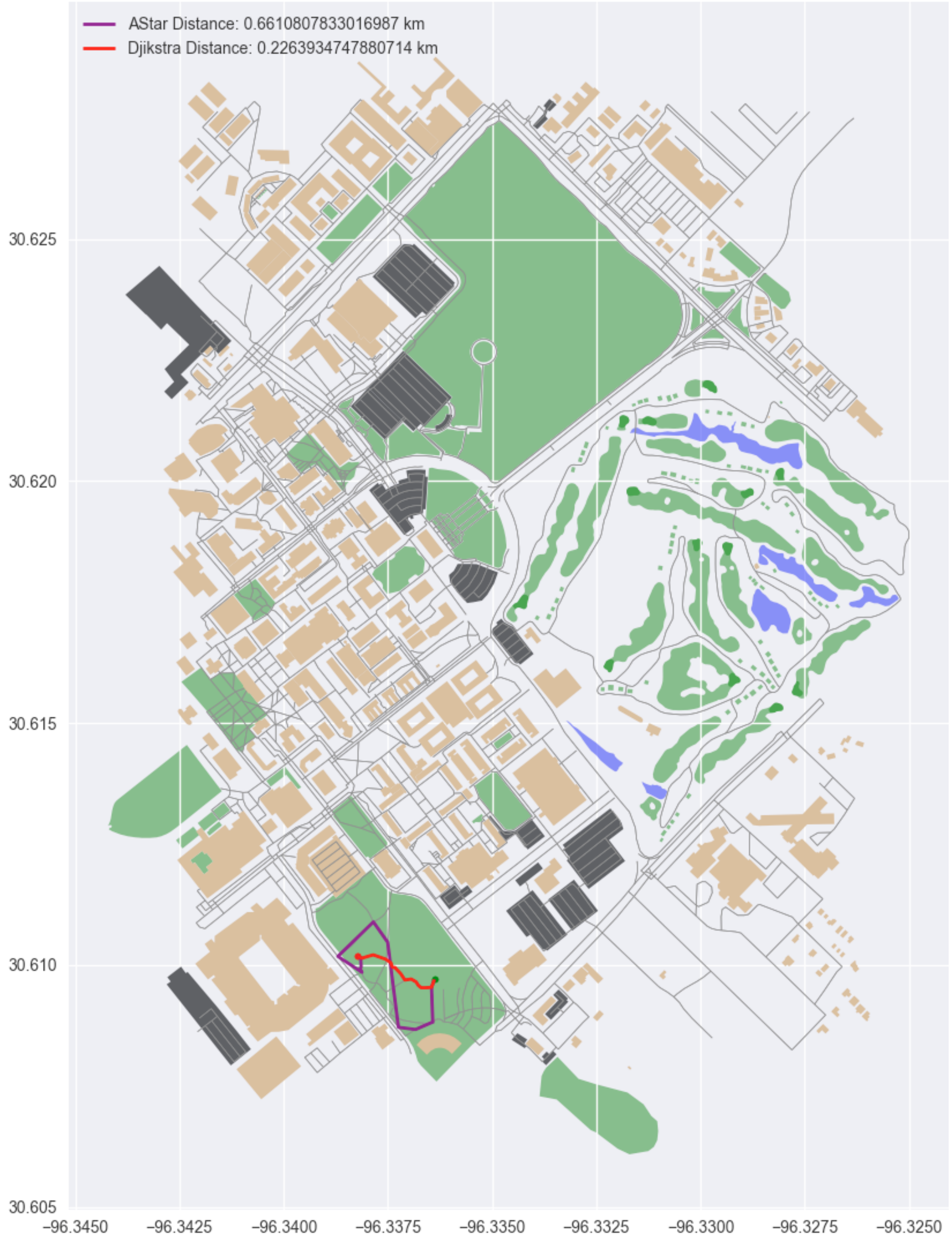
AStar has less efficient path and greater distance. Djikstra wins

Zach to Lot 51



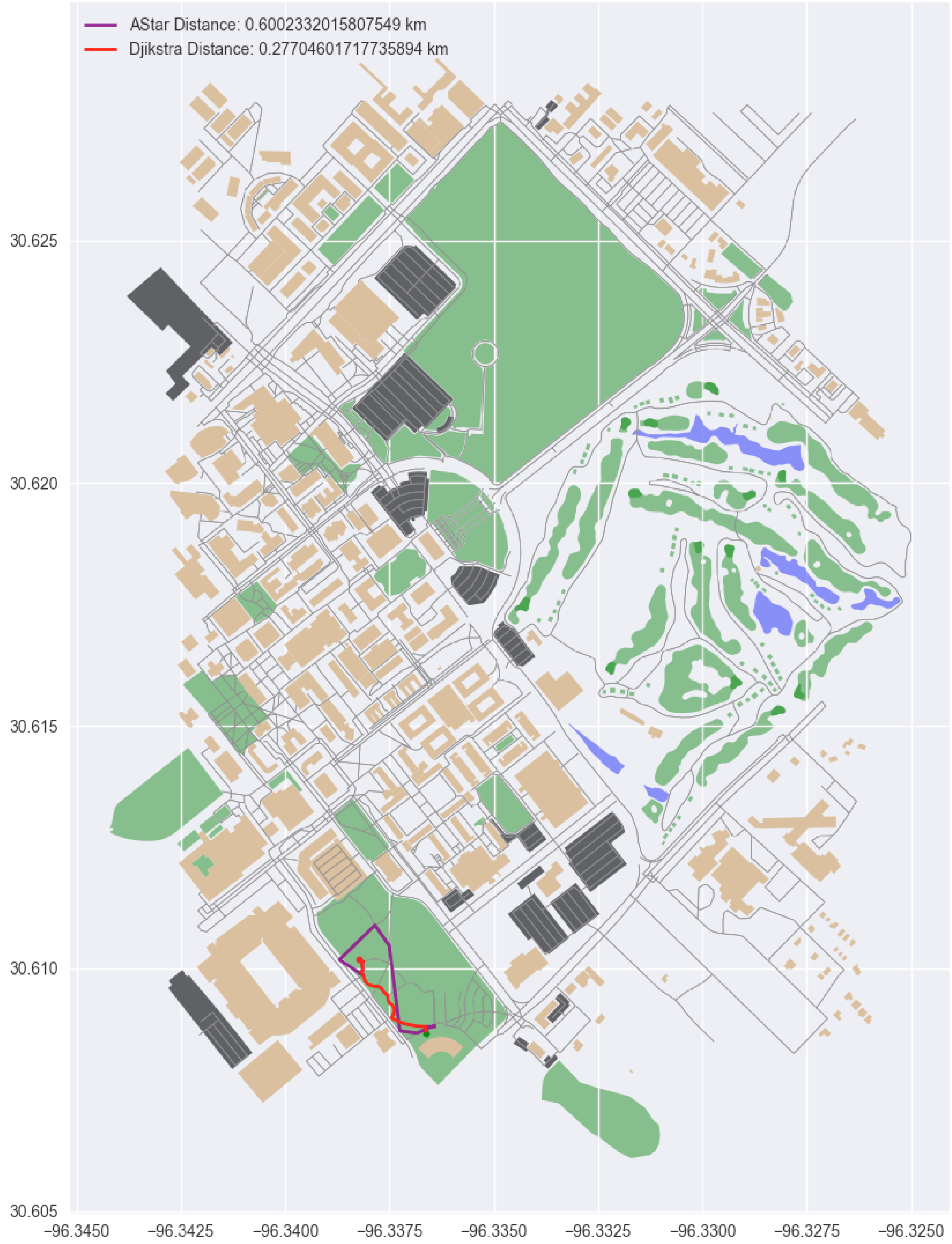
AStar has less efficient path and greater distance. Djikstra wins

Custom Nodes, Test Case 1 pathfind from one side of water to other side



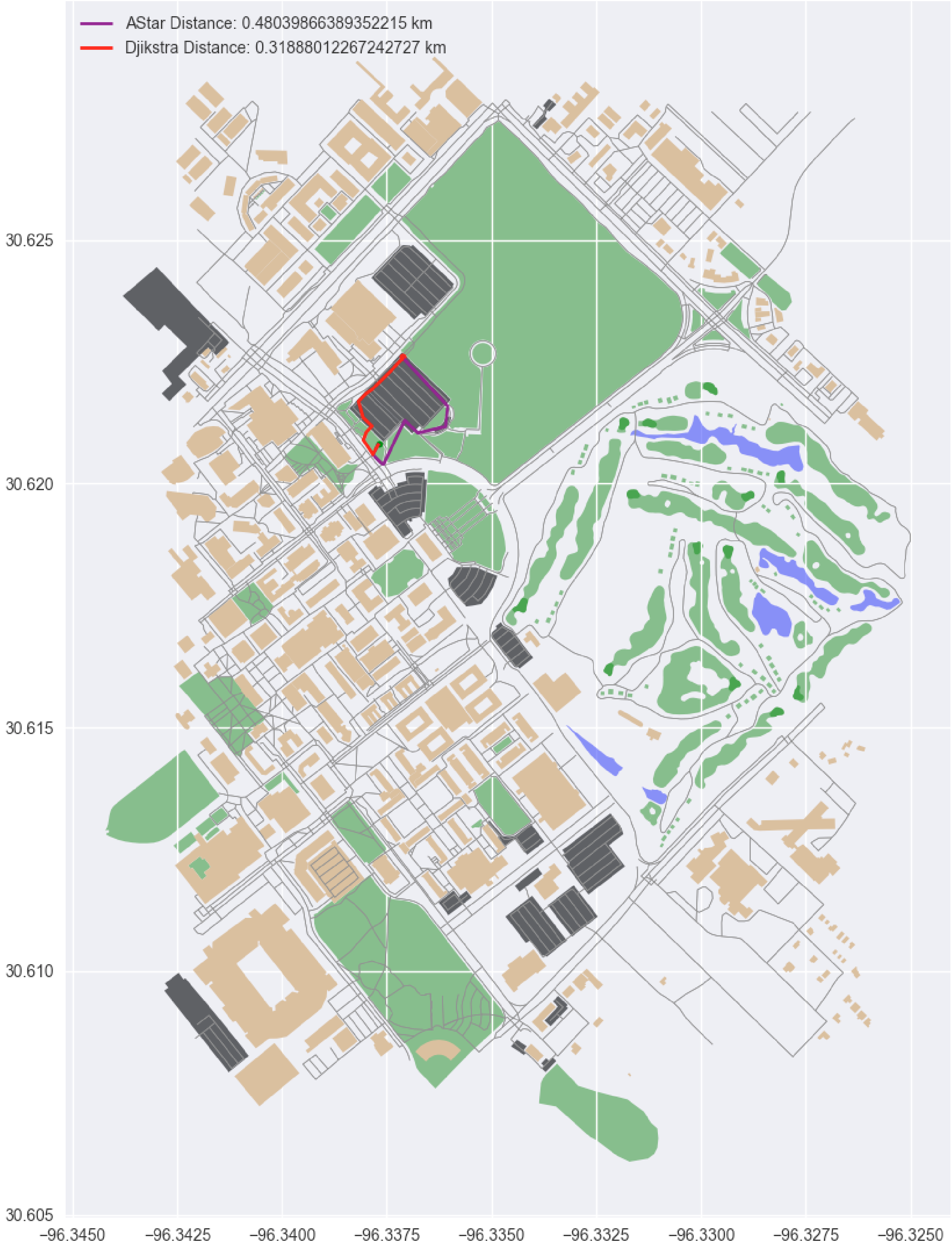
AStar provides a very inefficient and incorrect path. AStar distance is significantly greater. Djikstra wins

Custom Nodes, Test Case 2 pathfind from one side of water to other side



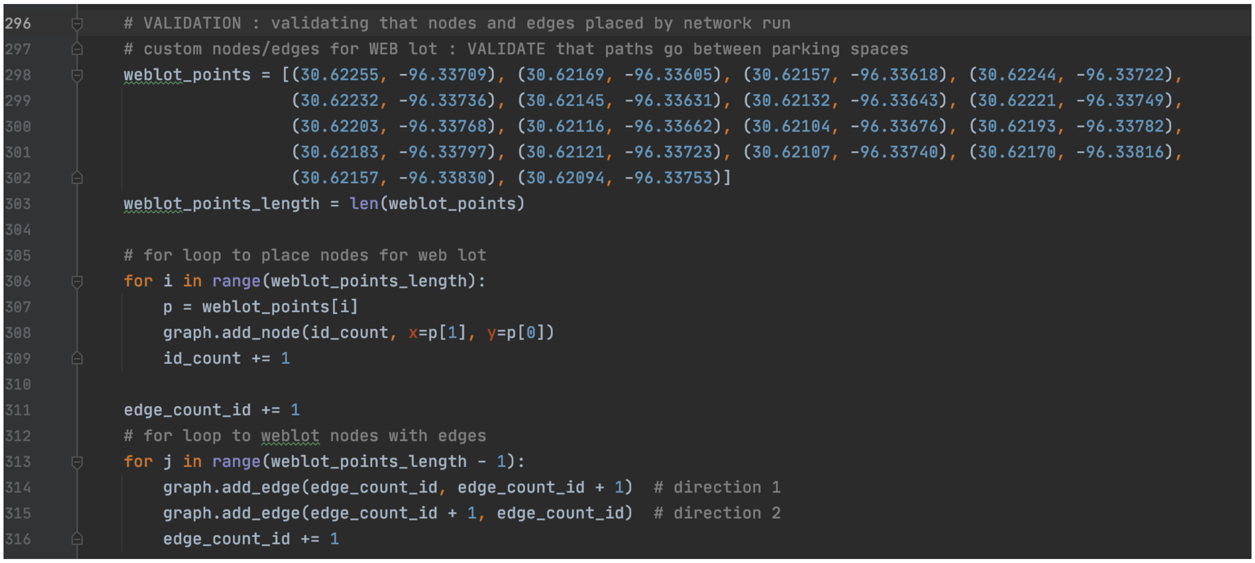
AStar provides a very inefficient and incorrect path. AStar distance is significantly greater. Djikstra wins

Test Case 3 pathfind from one side of lot to other side of lot



AStar provides a less efficient path. AStar distance is greater. Djikstra wins

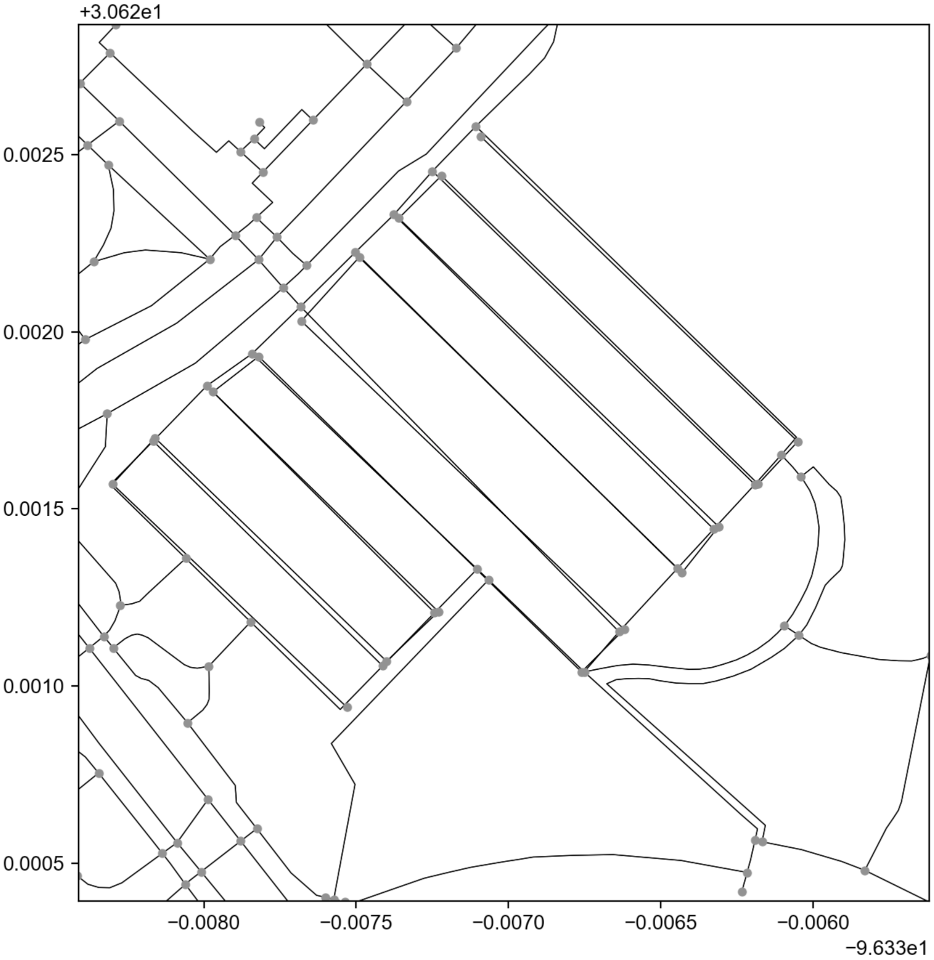
Validate the node placement of the nodes in front of WEB lotV



```
# VALIDATION : validating that nodes and edges placed by network run
# custom nodes/edges for WEB lot : VALIDATE that paths go between parking spaces
weblot_points = [(30.62255, -96.33709), (30.62169, -96.33605), (30.62157, -96.33618), (30.62244, -96.33722),
                 (30.62232, -96.33736), (30.62145, -96.33631), (30.62132, -96.33643), (30.62221, -96.33749),
                 (30.62203, -96.33768), (30.62116, -96.33662), (30.62104, -96.33676), (30.62193, -96.33782),
                 (30.62183, -96.33797), (30.62121, -96.33723), (30.62107, -96.33740), (30.62170, -96.33816),
                 (30.62157, -96.33830), (30.62094, -96.33753)]
weblot_points_length = len(weblot_points)

# for loop to place nodes for web lot
for i in range(weblot_points_length):
    p = weblot_points[i]
    graph.add_node(id_count, x=p[1], y=p[0])
    id_count += 1

edge_count_id += 1
# for loop to weblot nodes with edges
for j in range(weblot_points_length - 1):
    graph.add_edge(edge_count_id, edge_count_id + 1)  # direction 1
    graph.add_edge(edge_count_id + 1, edge_count_id)  # direction 2
    edge_count_id += 1
```



Confirmed that the walkways returned by the network are valid and go between parking space rows and not through them.

Tracking Nodes and Edges Validation

Initial MultiDiGraph Graph Before Custom Node and Edge Addition
graph {MultiDiGraph} with 1474 Nodes and 4296 edges)
graph_projection {MultiDiGraph} with 1474 Nodes and 4296 edges)

MultiDiGraph : 1530 Nodes and 4418 edges after user input and custom node/edges addition