

Innovating in Food Delivery

*Or: How I learned to stop worrying
and love the drone*

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Problem Statement/Opportunity

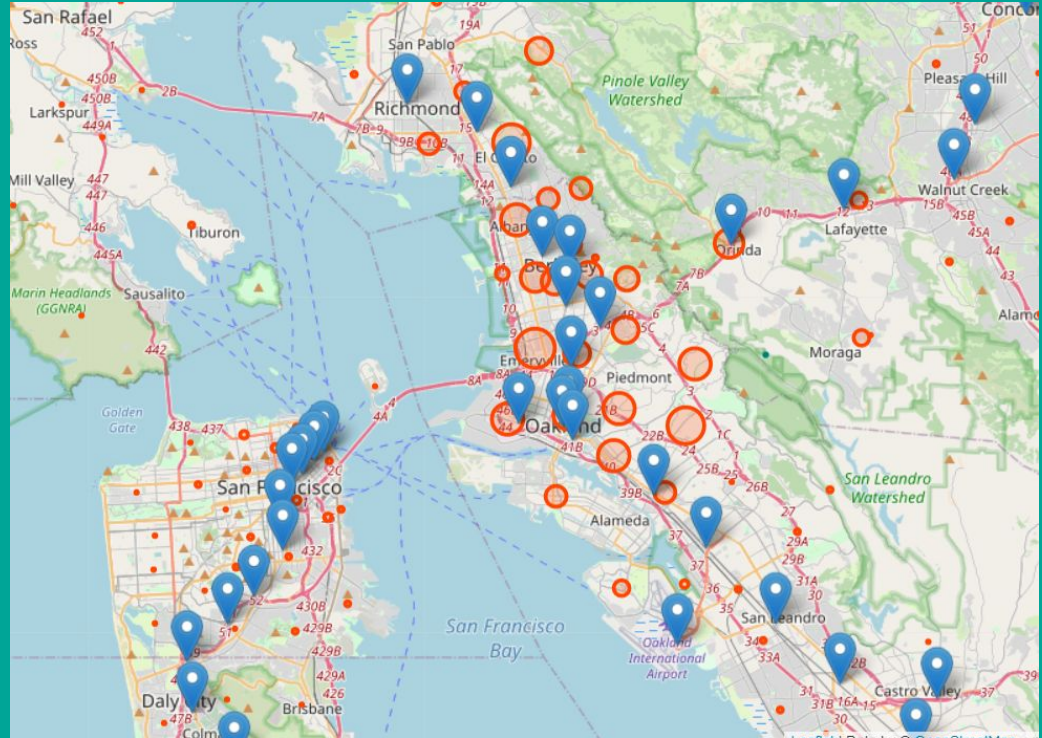
Support AGM long term growth through different environmentally friendly deliveries in the Bay Area

Hybrid approach solution: BART and Delivery Drones*

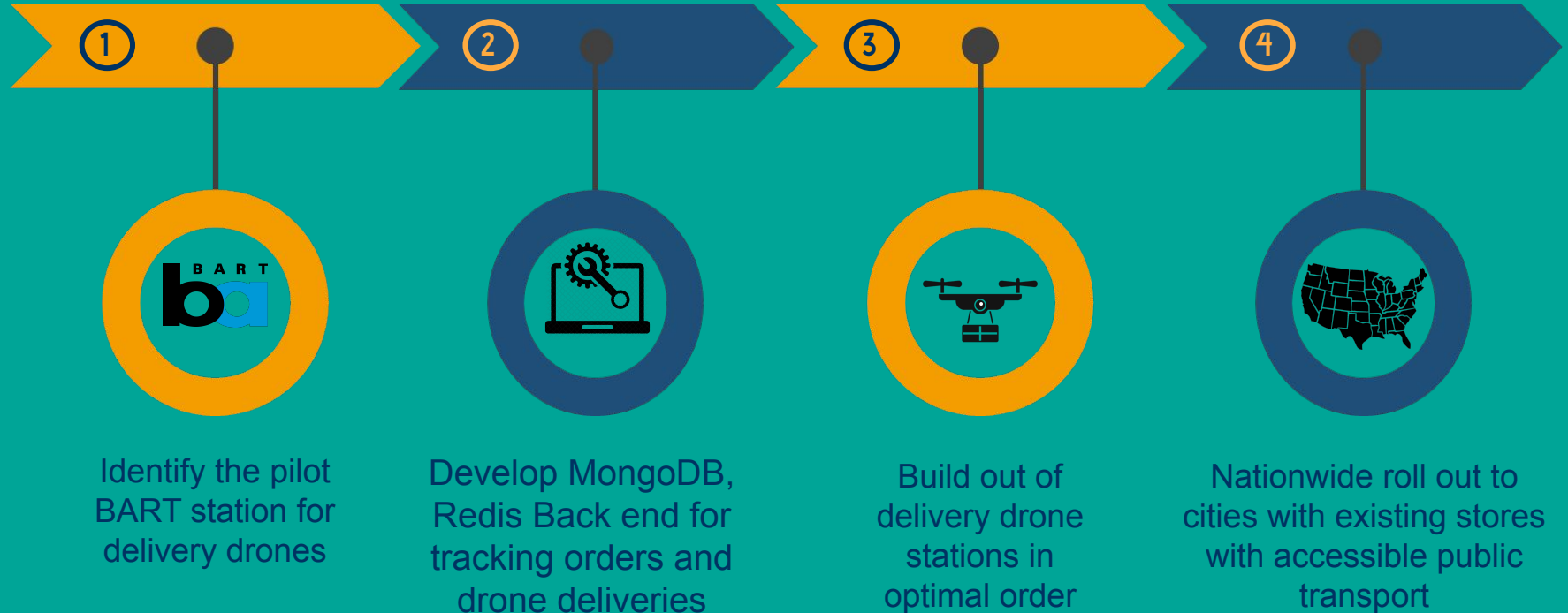
*Assume engineering/FAA/legal issues are solved

Delivery Potential

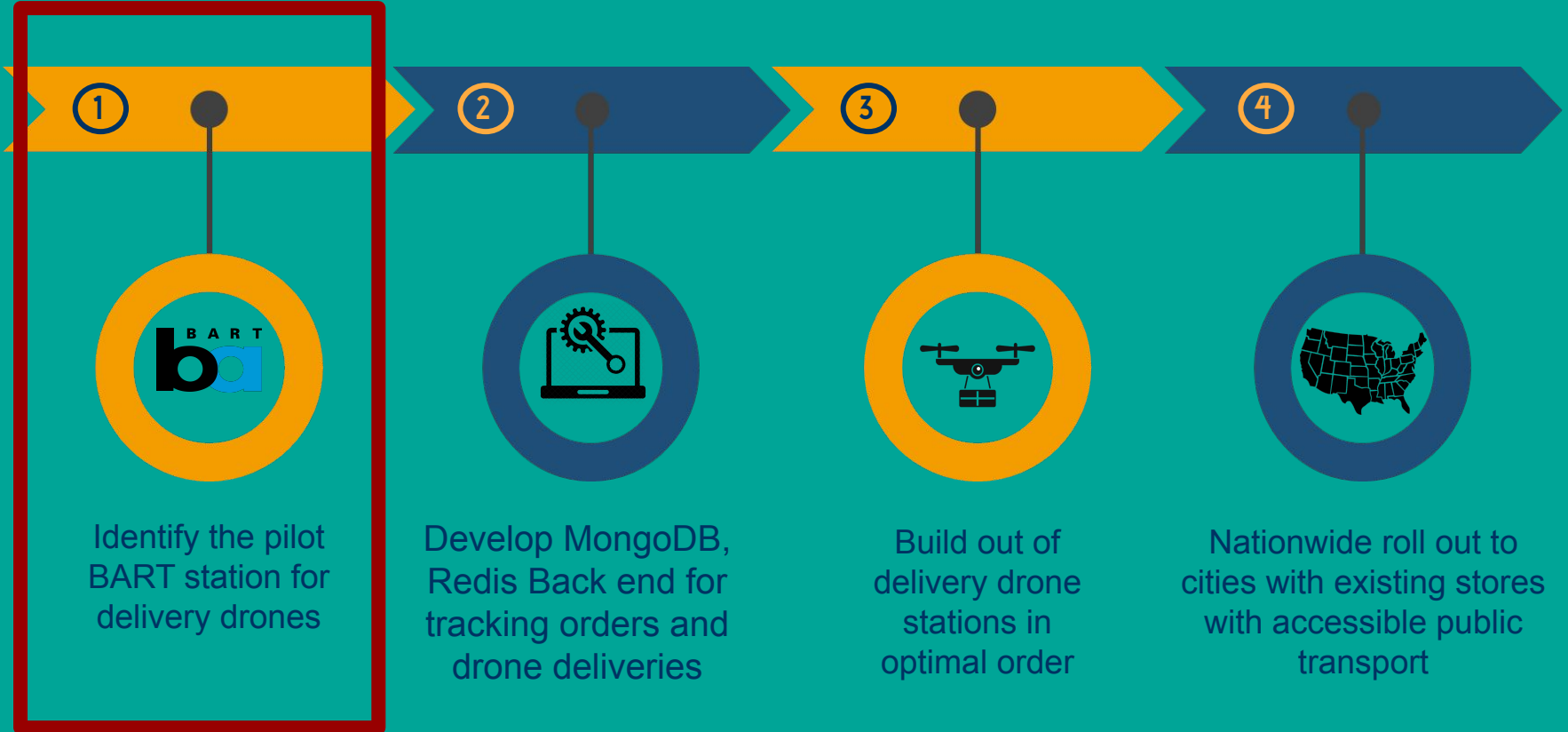
- Population of 4,000,000+
- 300,000+ current customers
- ~80% of population live within 15 miles of a BART station



Deliveries Roadmap



Deliveries Roadmap

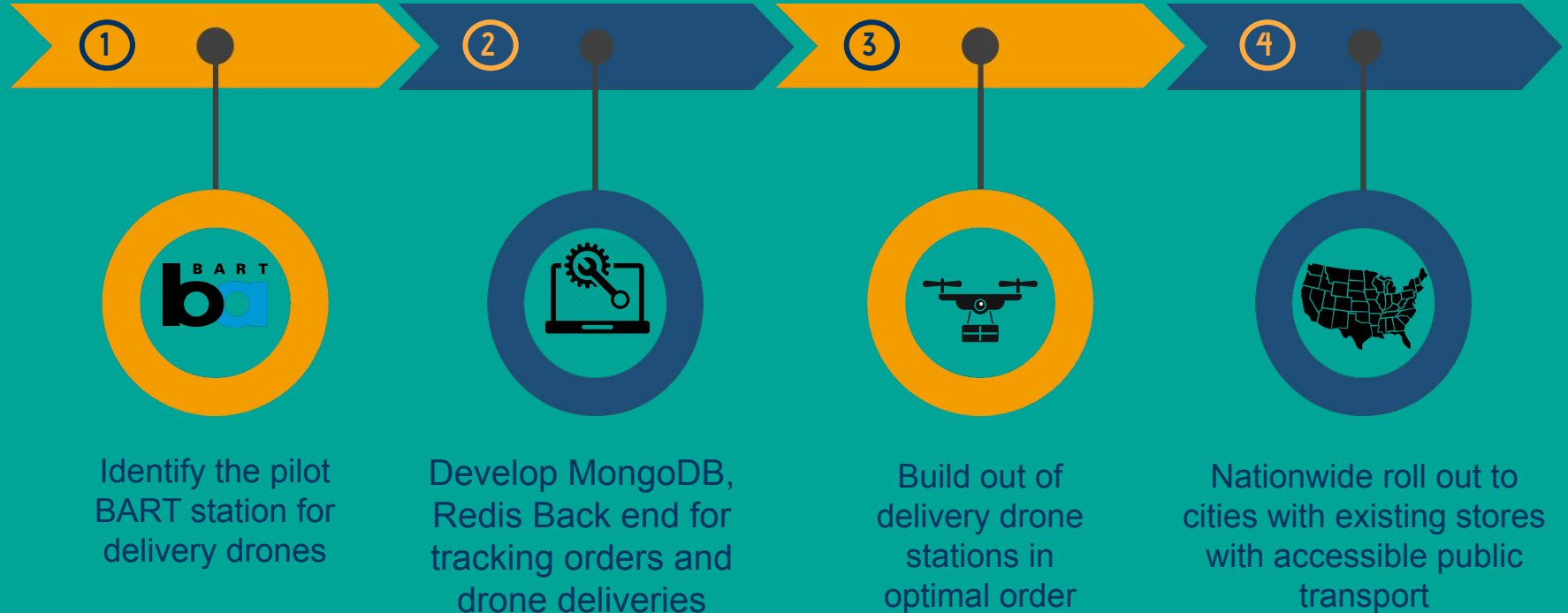


Choosing “pilot” drone delivery station (near Berkeley)

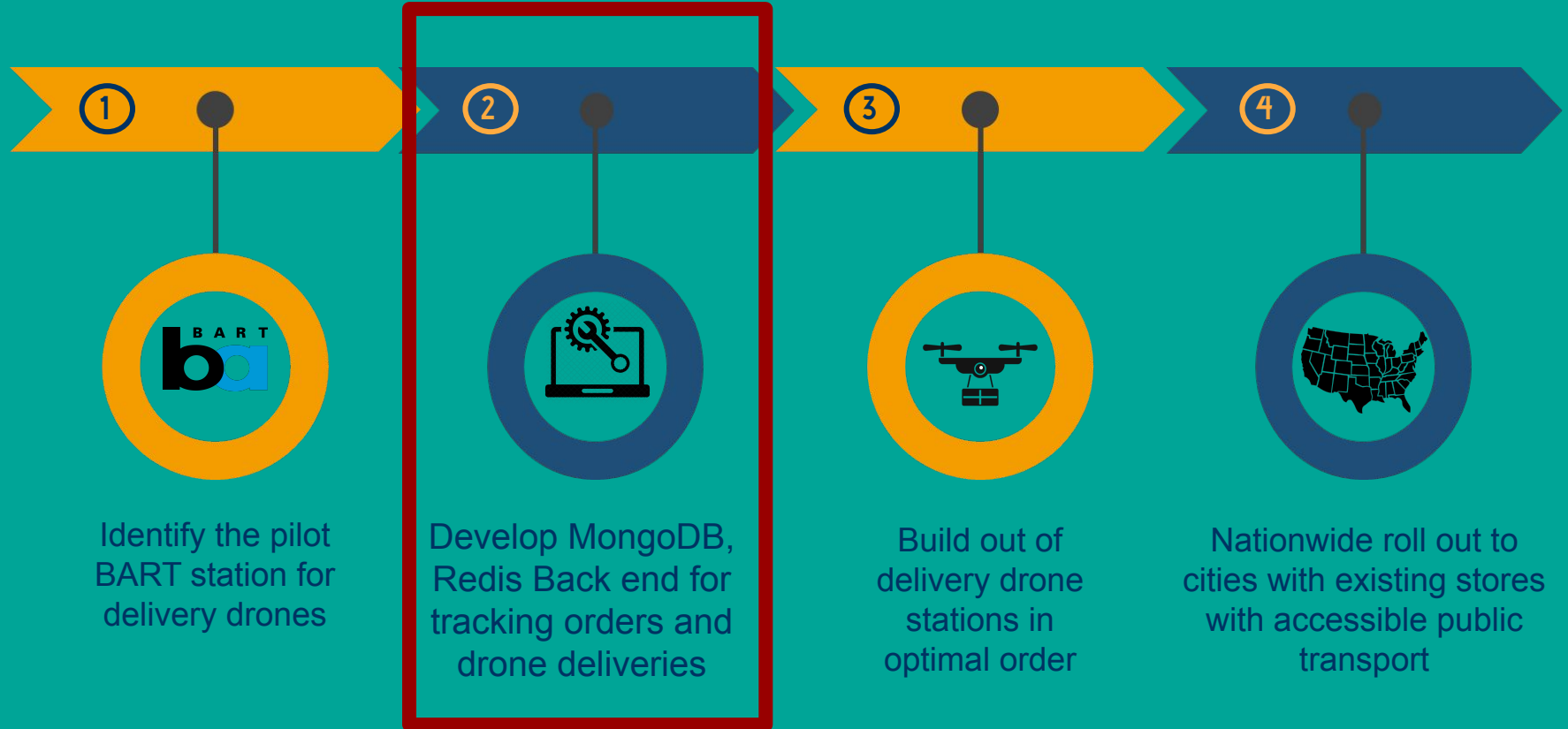


Station	“Betweenness” Composite Score
MacArthur	6.13
Ashby	6.08
Civic Center	5.14
North Berkeley	5.10
Downtown Berkeley	4.89

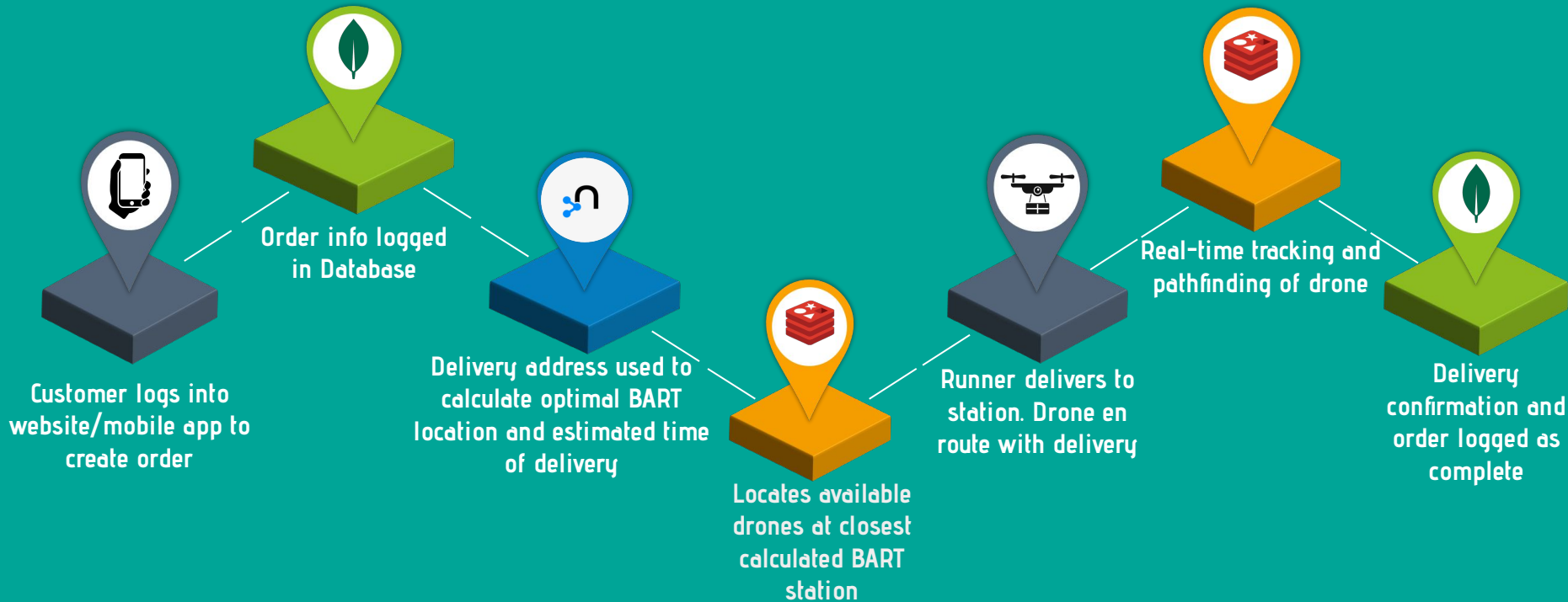
Deliveries Roadmap



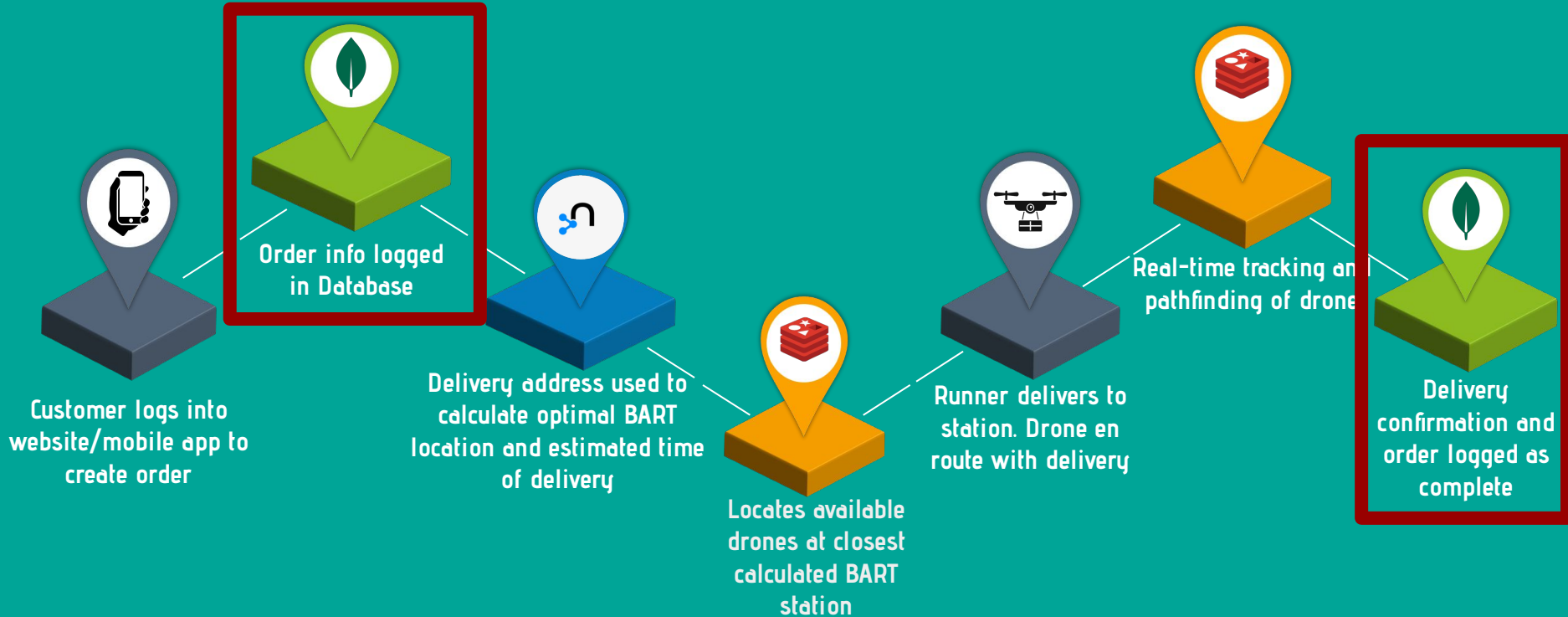
Deliveries Roadmap



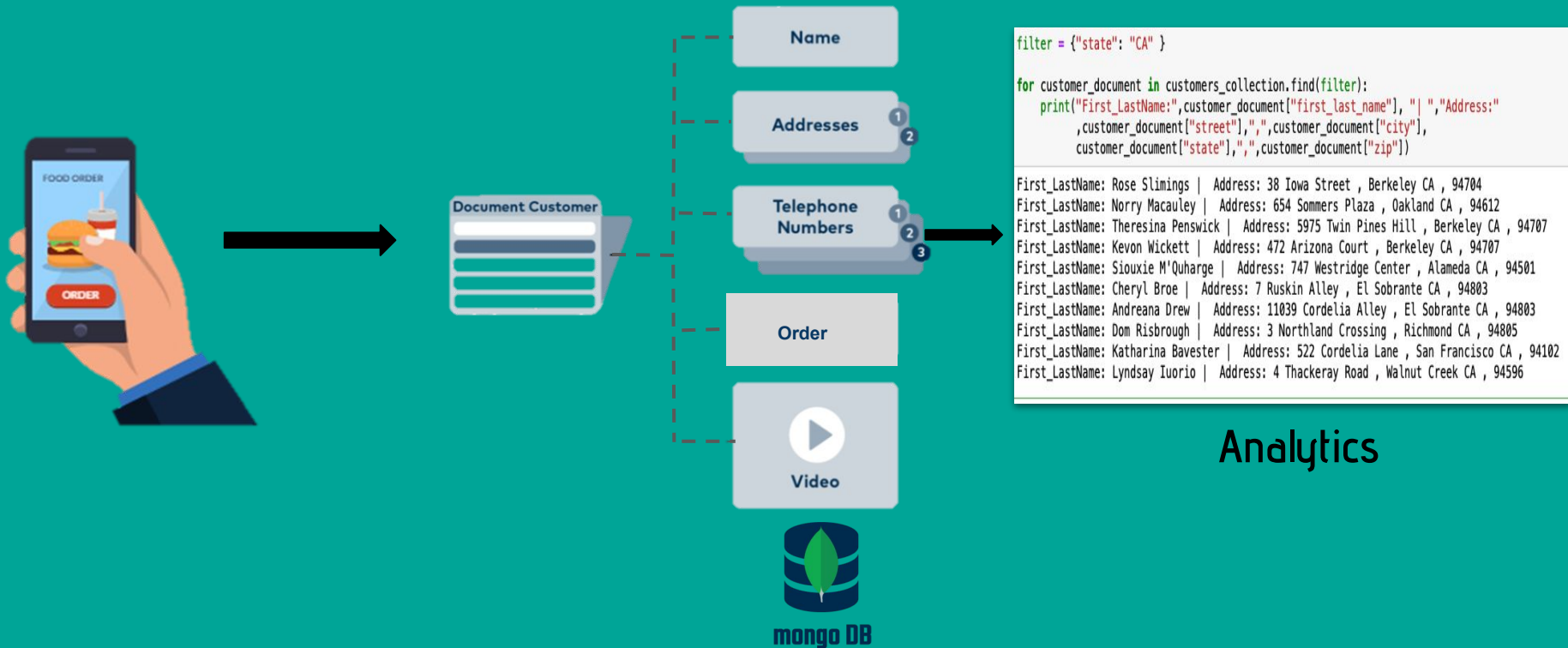
Example Process Overview



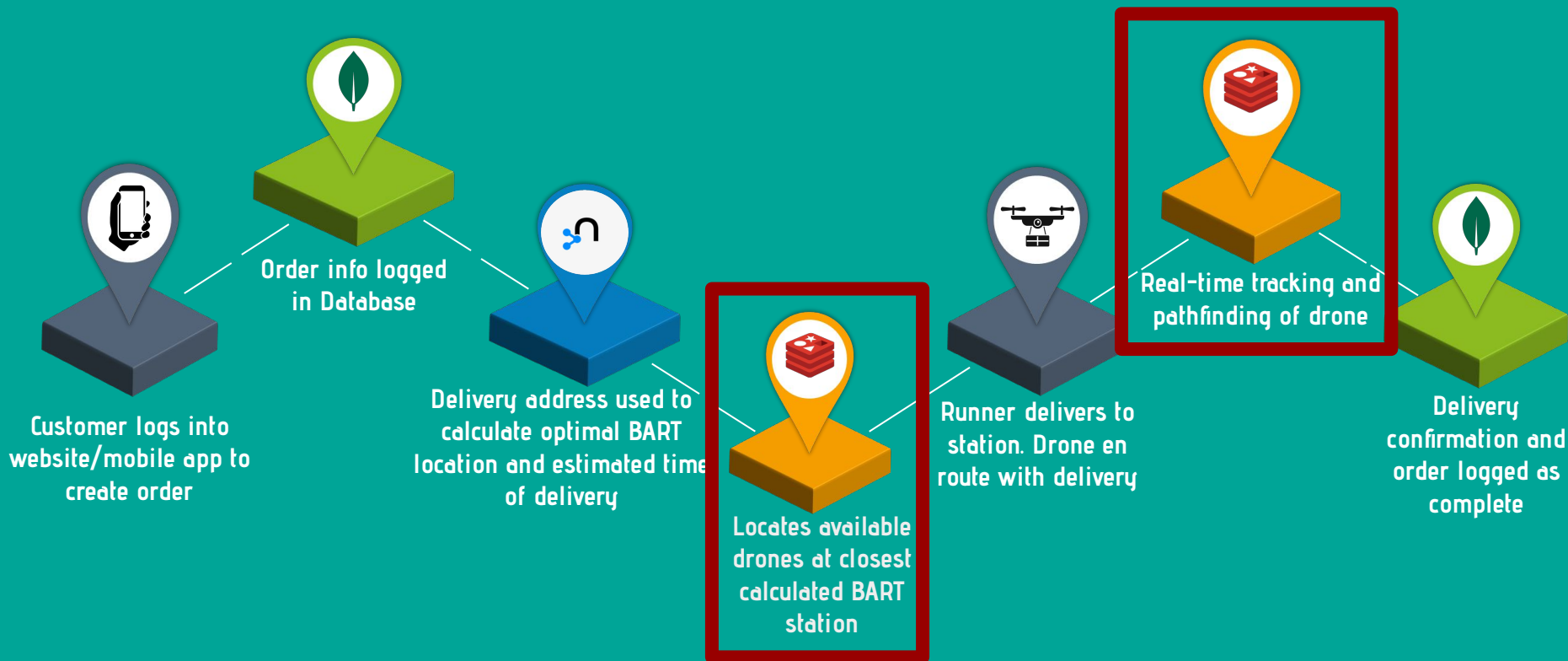
Considering MongoDB



Business Application MongoDB



Considering Redis



Business Application (Redis)



```
for key in stations_drone_db.keys():  
    print("key:", key, "value:", stations_drone_db.get(key))
```

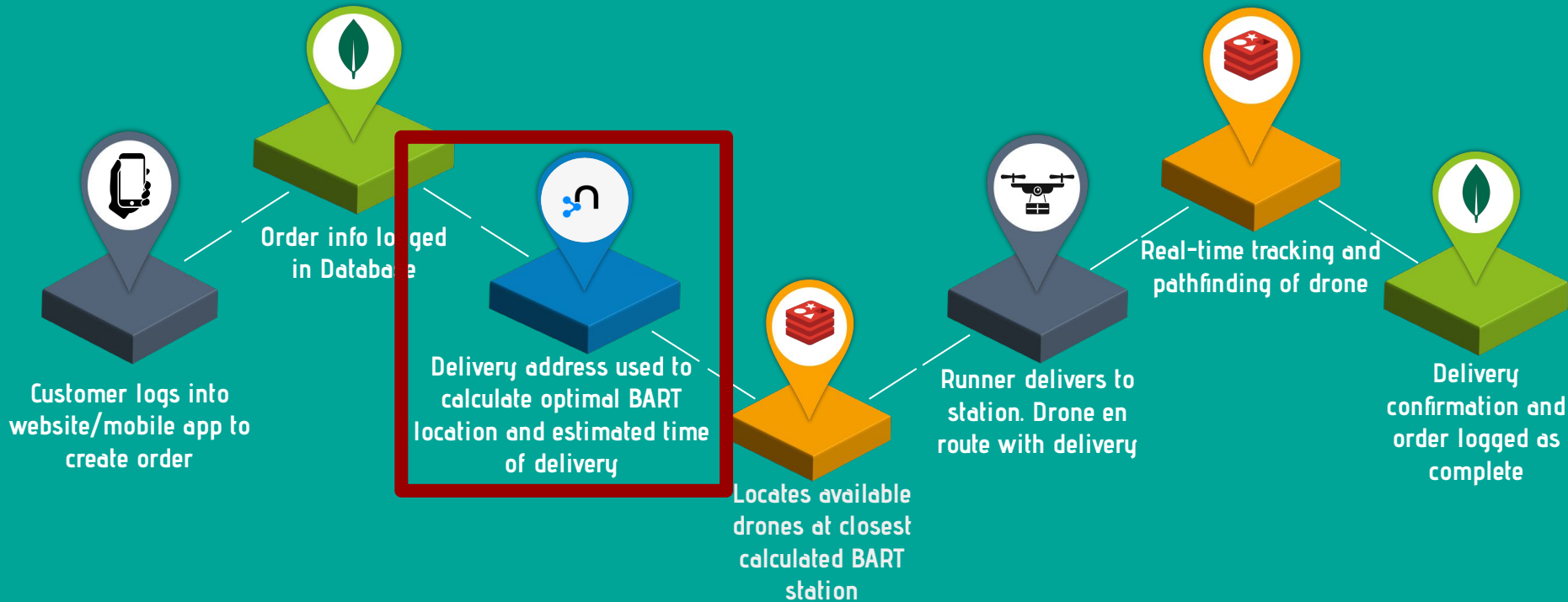
```
stations_drone_db.set("12th Street", "Hubsan FPV X4 Plus")  
stations_drone_db.set("12th Street", "Hubsan FPV X4 Plus")  
stations_drone_db.set("19th Street", "FPV Drone F807")  
stations_drone_db.set("24th Street Mission", "Hubsan X4 H108")  
stations_drone_db.set("Antioch", "Nano Quad CX-10D")  
stations_drone_db.set("Ashby", "Hubsan FPV Spy Hawk")  
stations_drone_db.set("Balboa Park", "Blade Nano OX RTF")  
stations_drone_db.set("Bay Fair", "Hubsan X4 Spider")  
stations_drone_db.set("Berryessa", "Dexterity X100")  
stations_drone_db.set("Castro Valley", "Raider XL")
```



Drone information display system (DIDS)



Considering Neo4j



Choosing optimal BART routes to customer

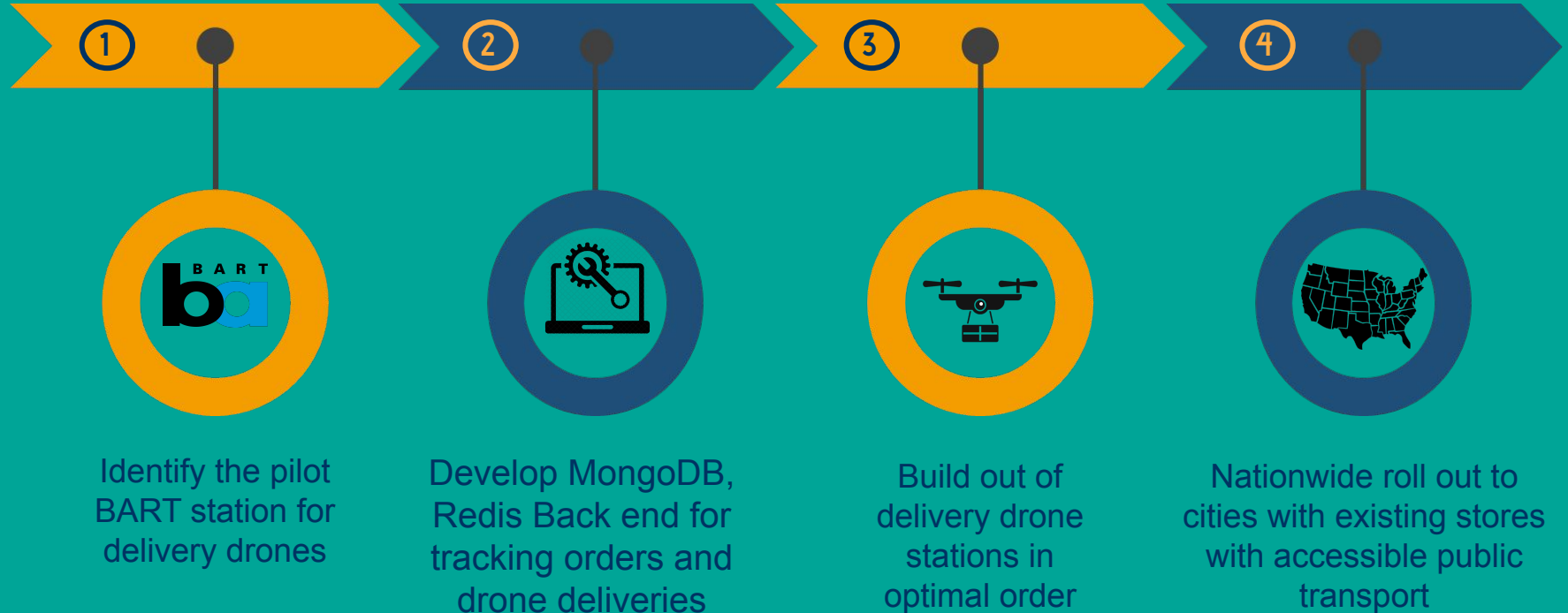


Total Cost: 2034

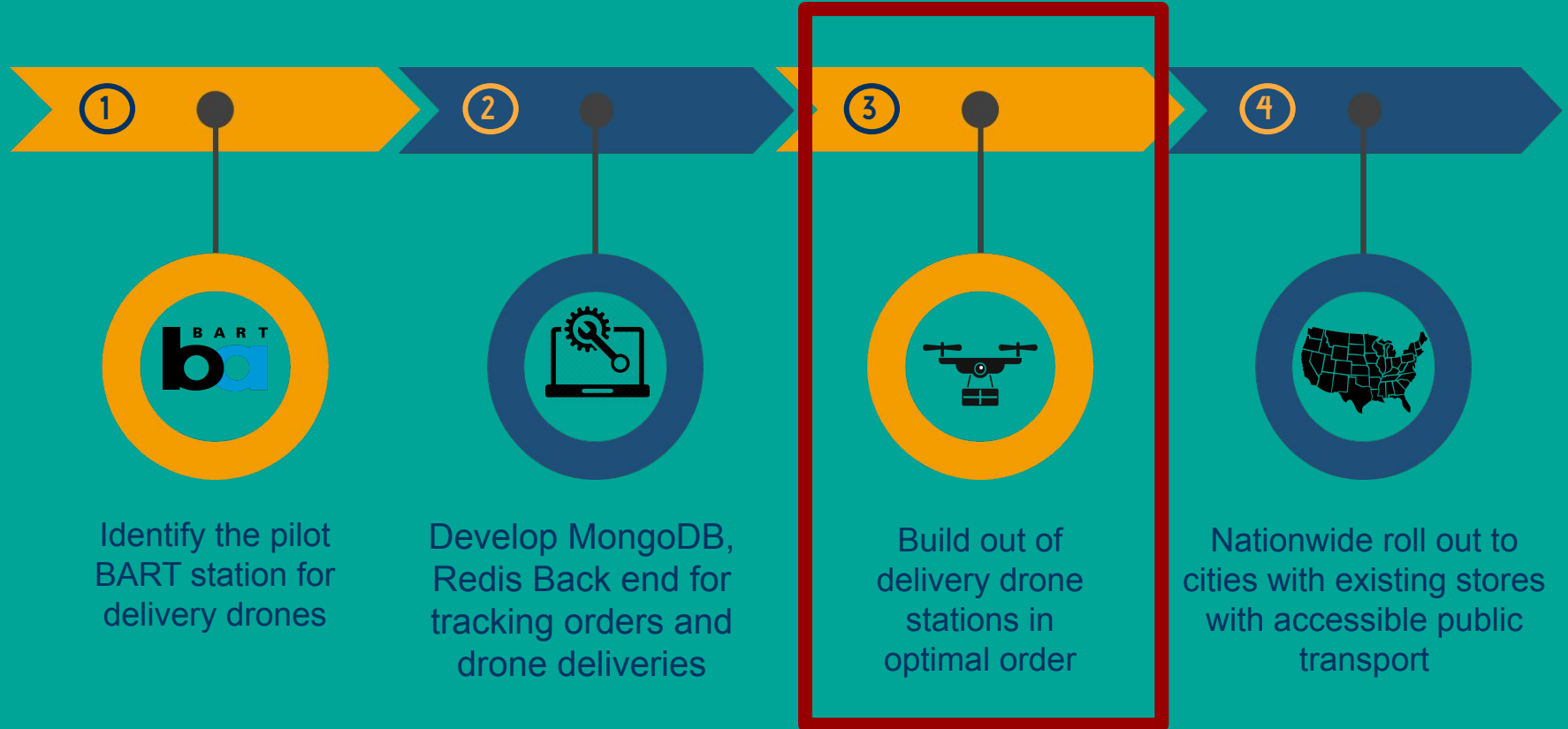
Minutes: 33.9

```
depart Ashby, 0, 0
orange Ashby, 0, 0
orange MacArthur, 240, 240
orange 19th Street, 180, 420
orange 12th Street, 120, 540
orange Lake Merritt, 180, 720
orange Fruitvale, 300, 1020
orange Coliseum, 240, 1260
blue Coliseum, 54, 1314
blue San Leandro, 240, 1554
blue Bay Fair, 240, 1794
blue Castro Valley, 240, 2034
arrive Castro Valley, 0, 2034
```

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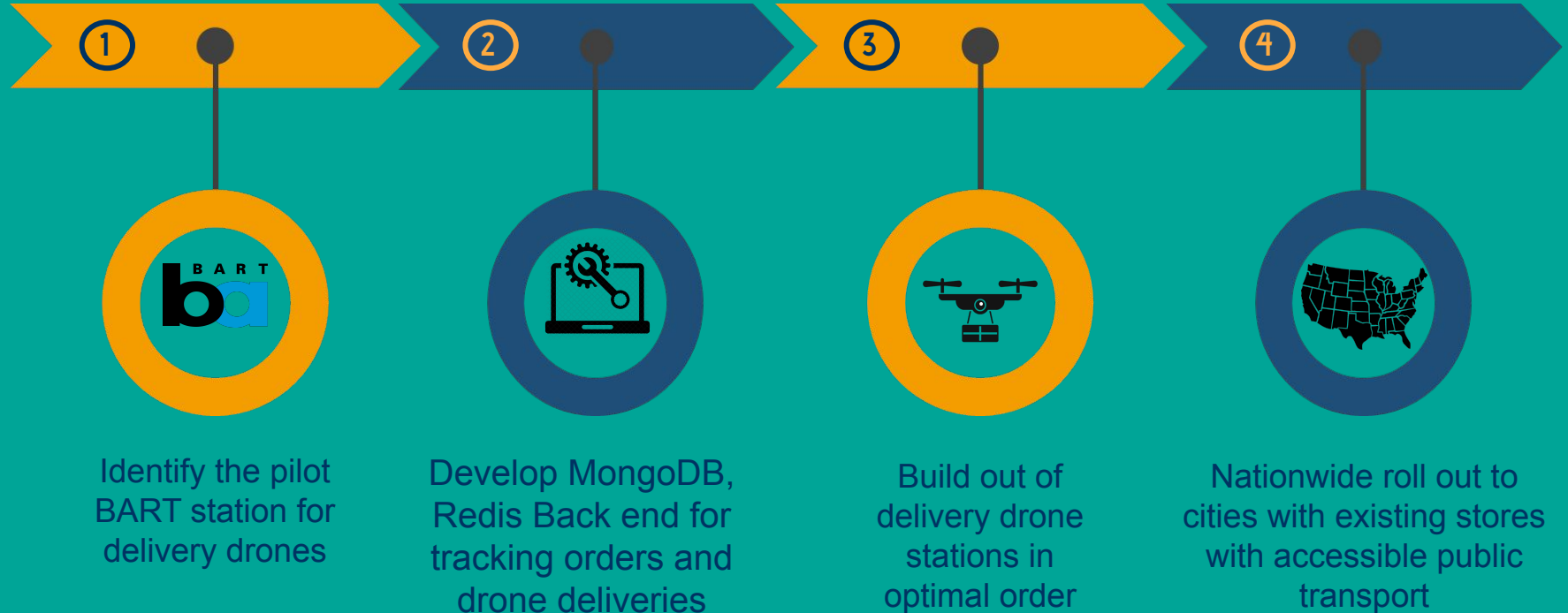


Choosing future stations for product roll out (SF)

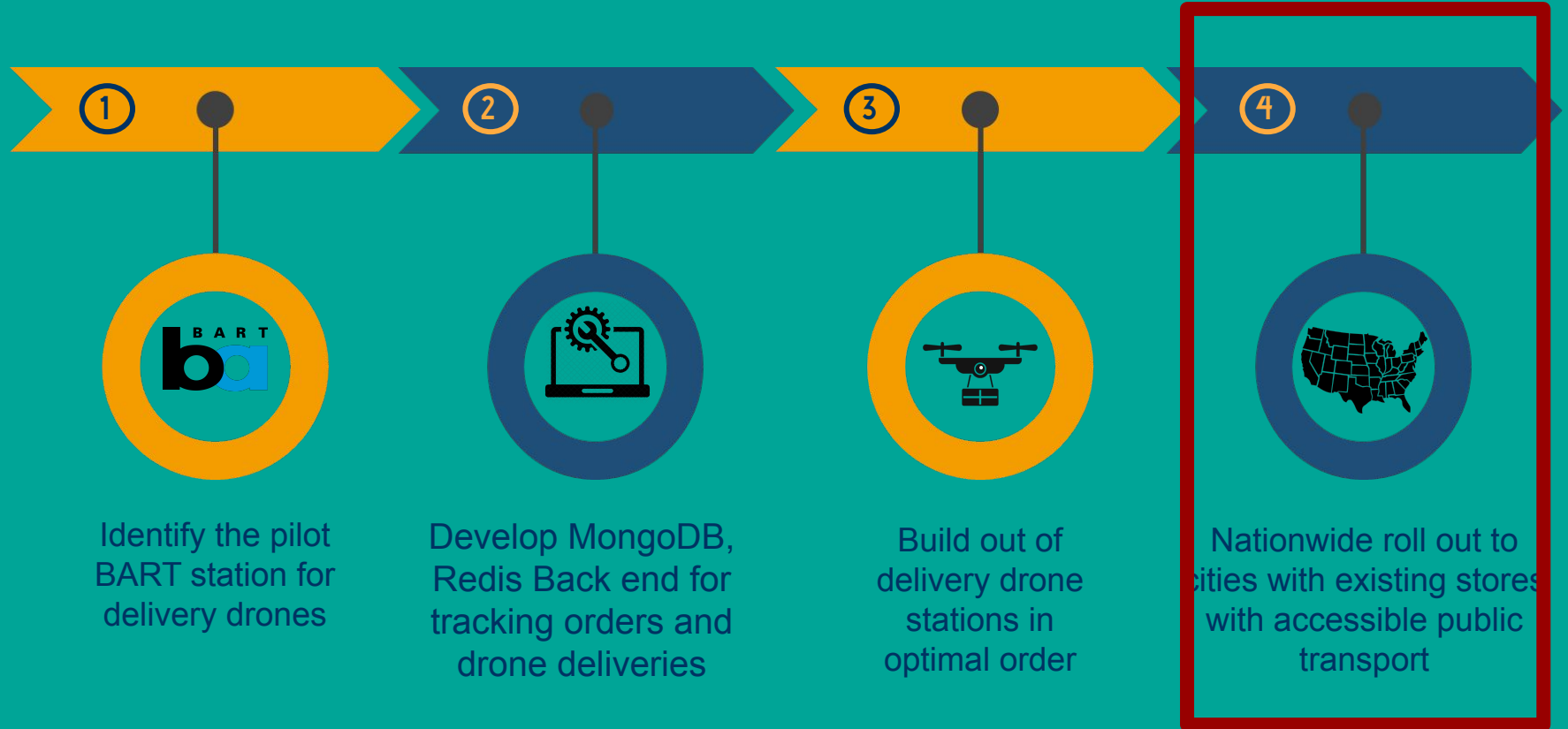


Station	"Closeness" Composite Score
Civic Center	4.68
16th Street Mission	4.66
Powell Street	4.04
Glen Park	3.96
Montgomery Street	3.49

Deliveries Roadmap



Deliveries Roadmap



Questions?

