

# Shortest Path: Geographic Maps

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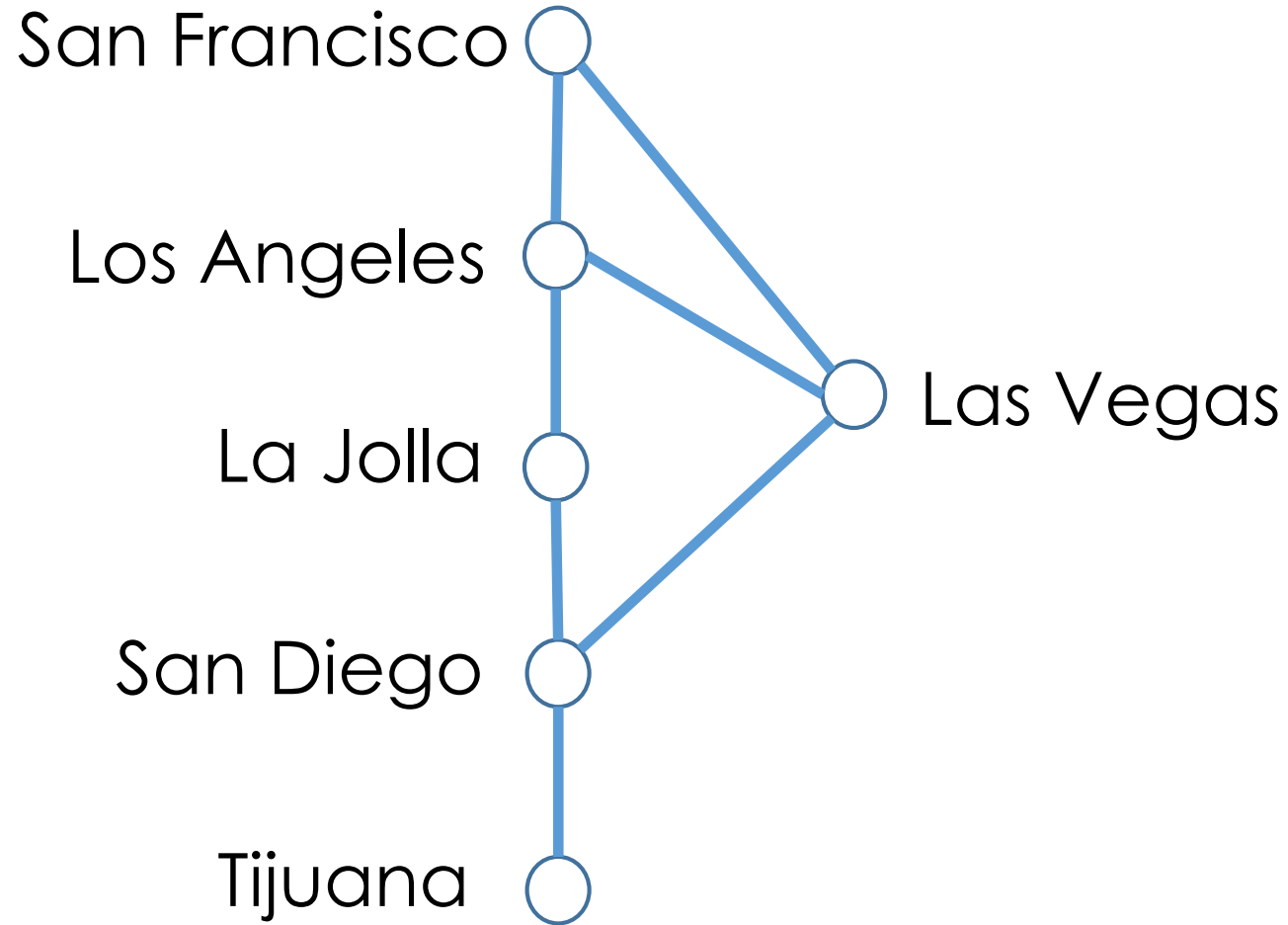


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by Christine Alvarado, Mia Minnes, and Leo Porter, 2015.

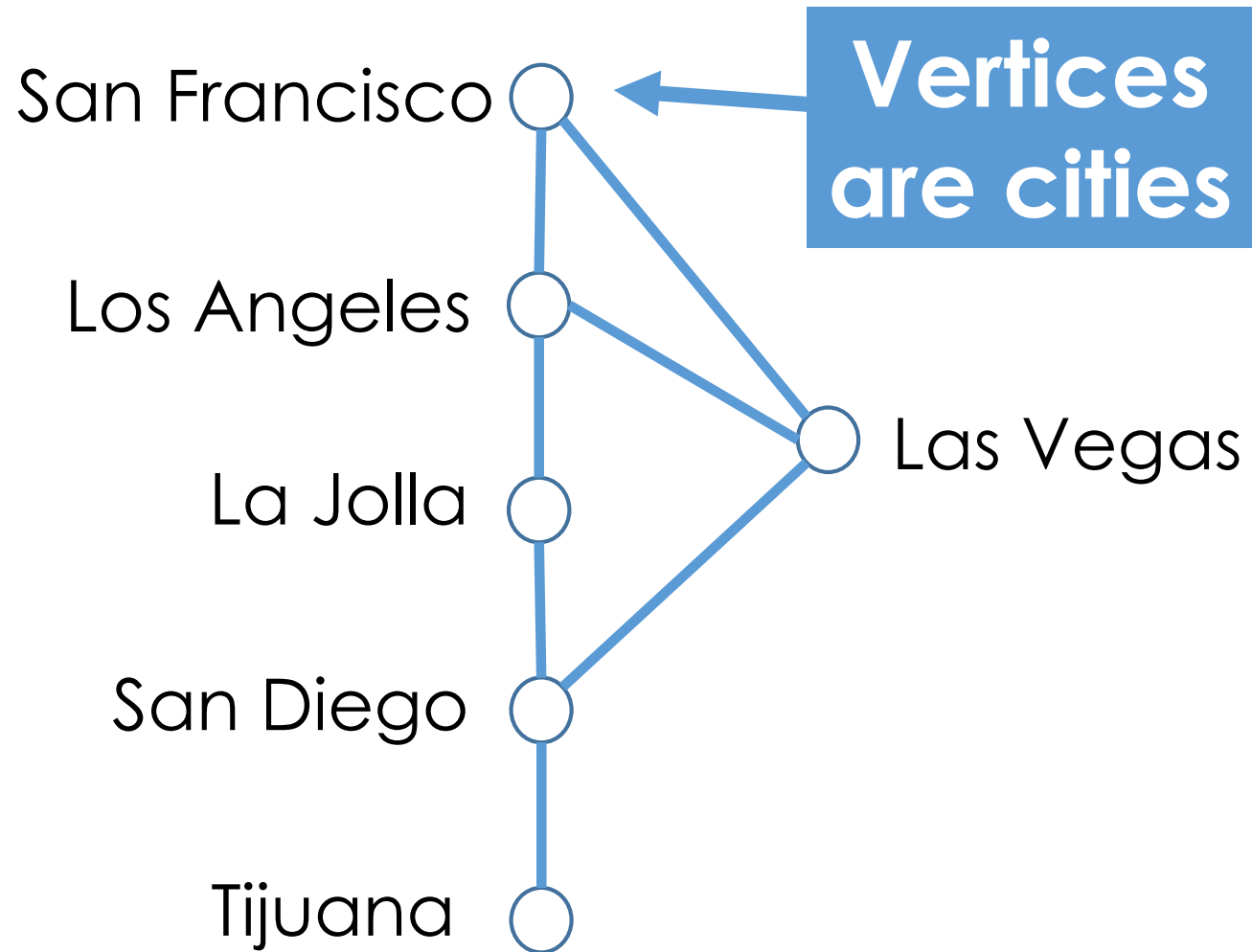
## By the end of this video you will be able to...

- Represent a geographic map as a graph
- Explain Breadth First Search's limitations for graphs with weighted edges

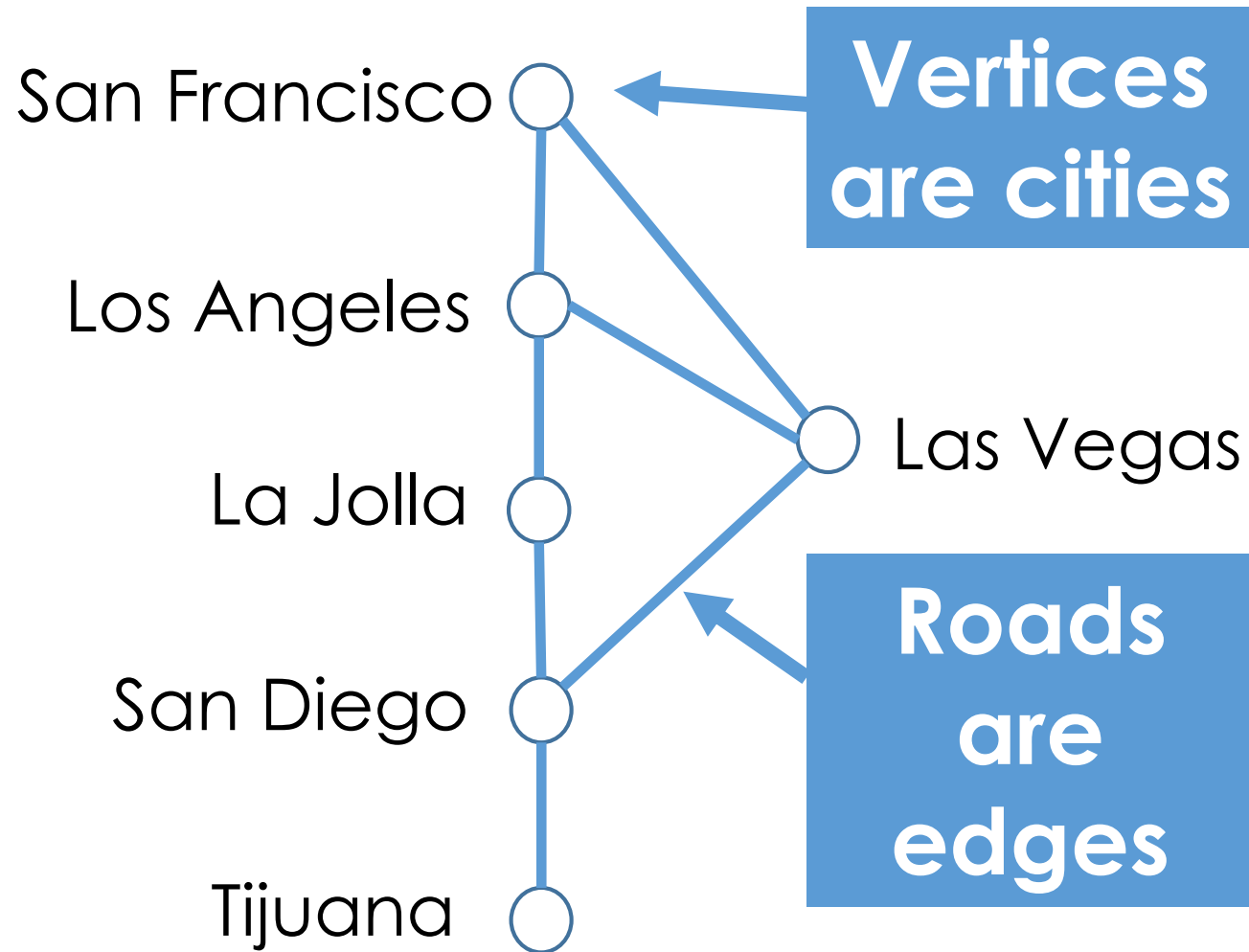
# Geographic Maps as Graphs



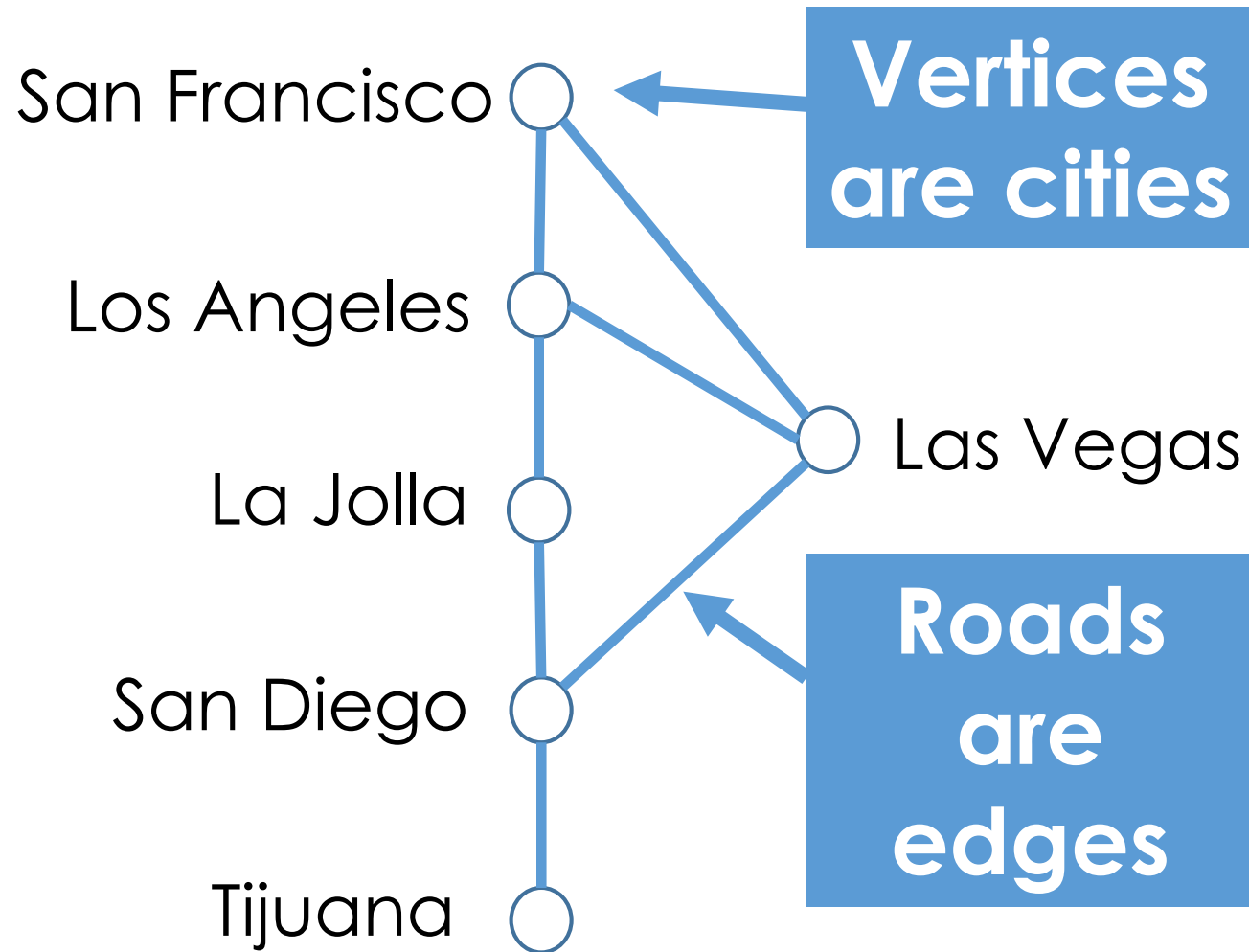
# Geographic Maps as Graphs



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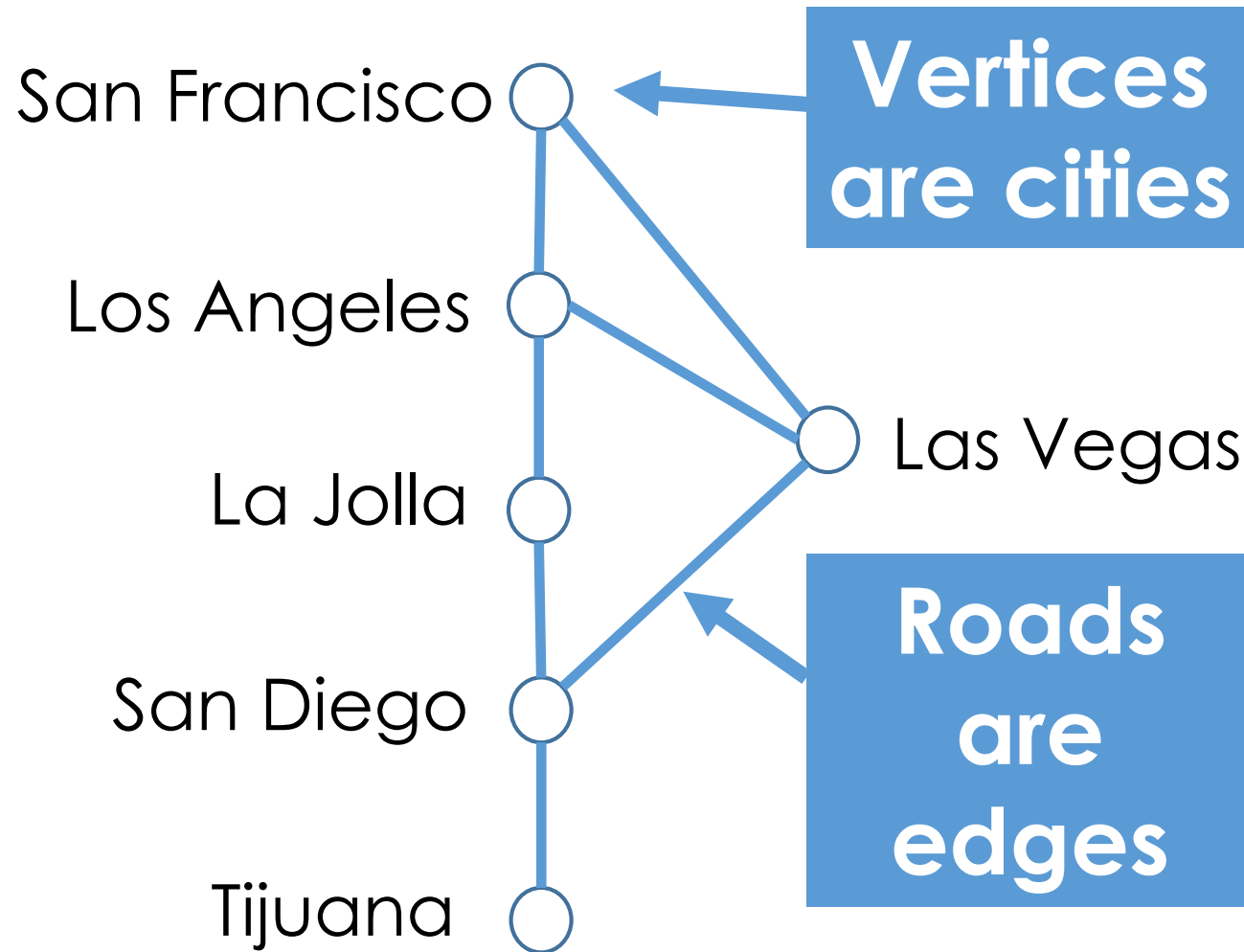


# Geographic Maps as Graphs

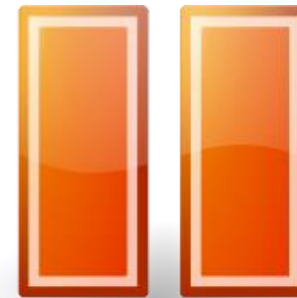


**What's missing  
from this graph?**

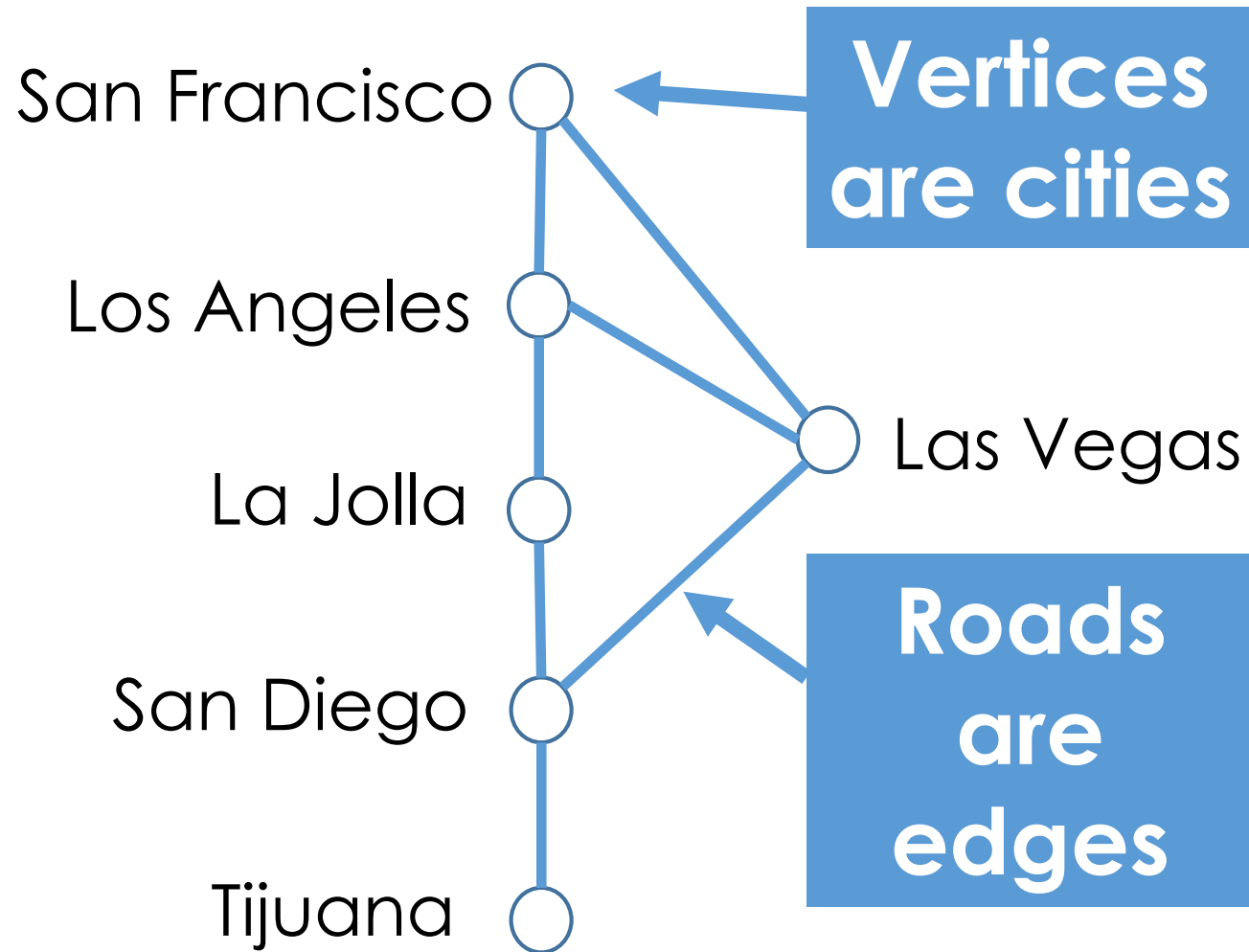
# Geographic Maps as Graphs



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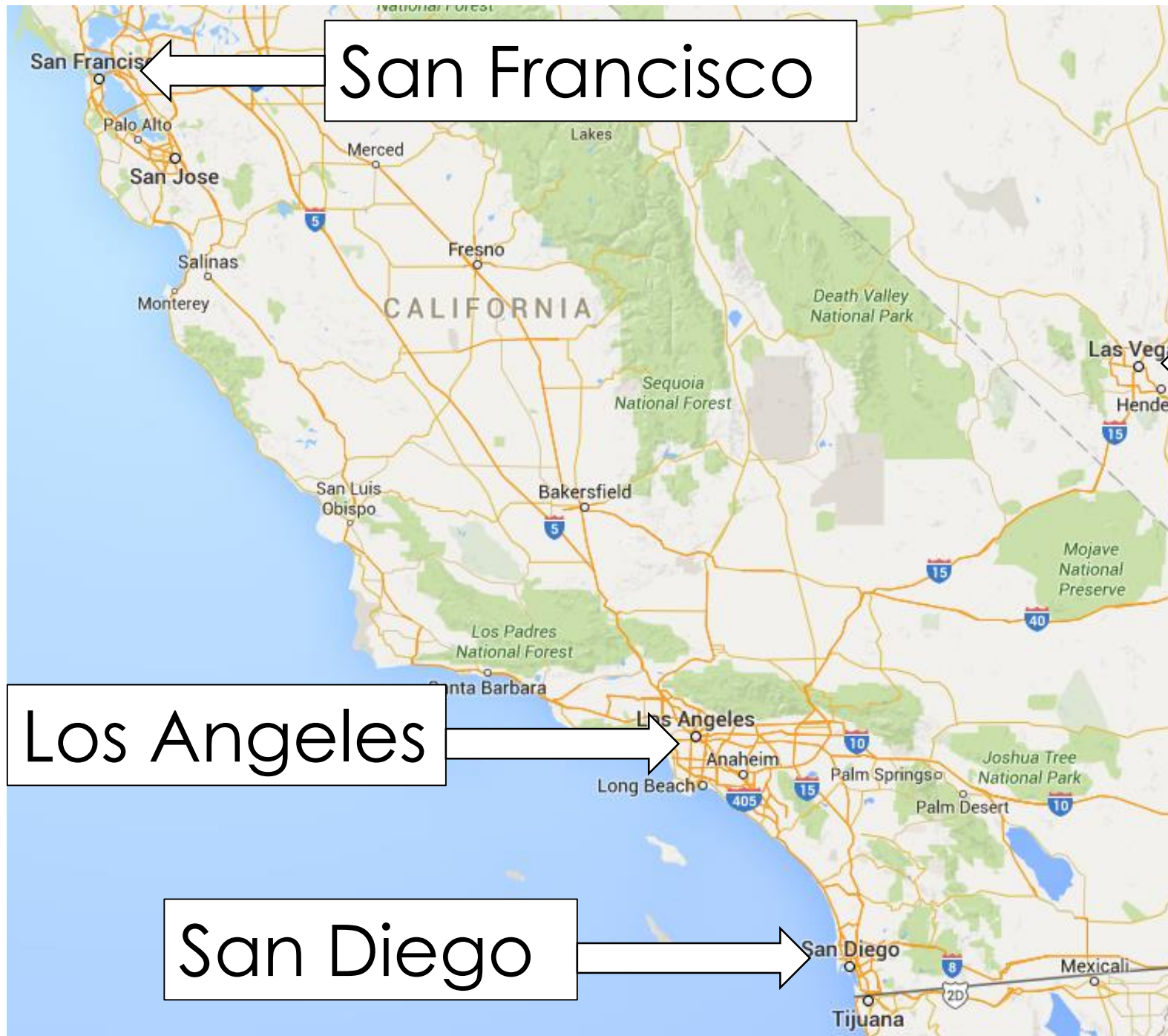


# Geographic Maps as Graphs



**What's missing  
from this graph?**





Las Vegas

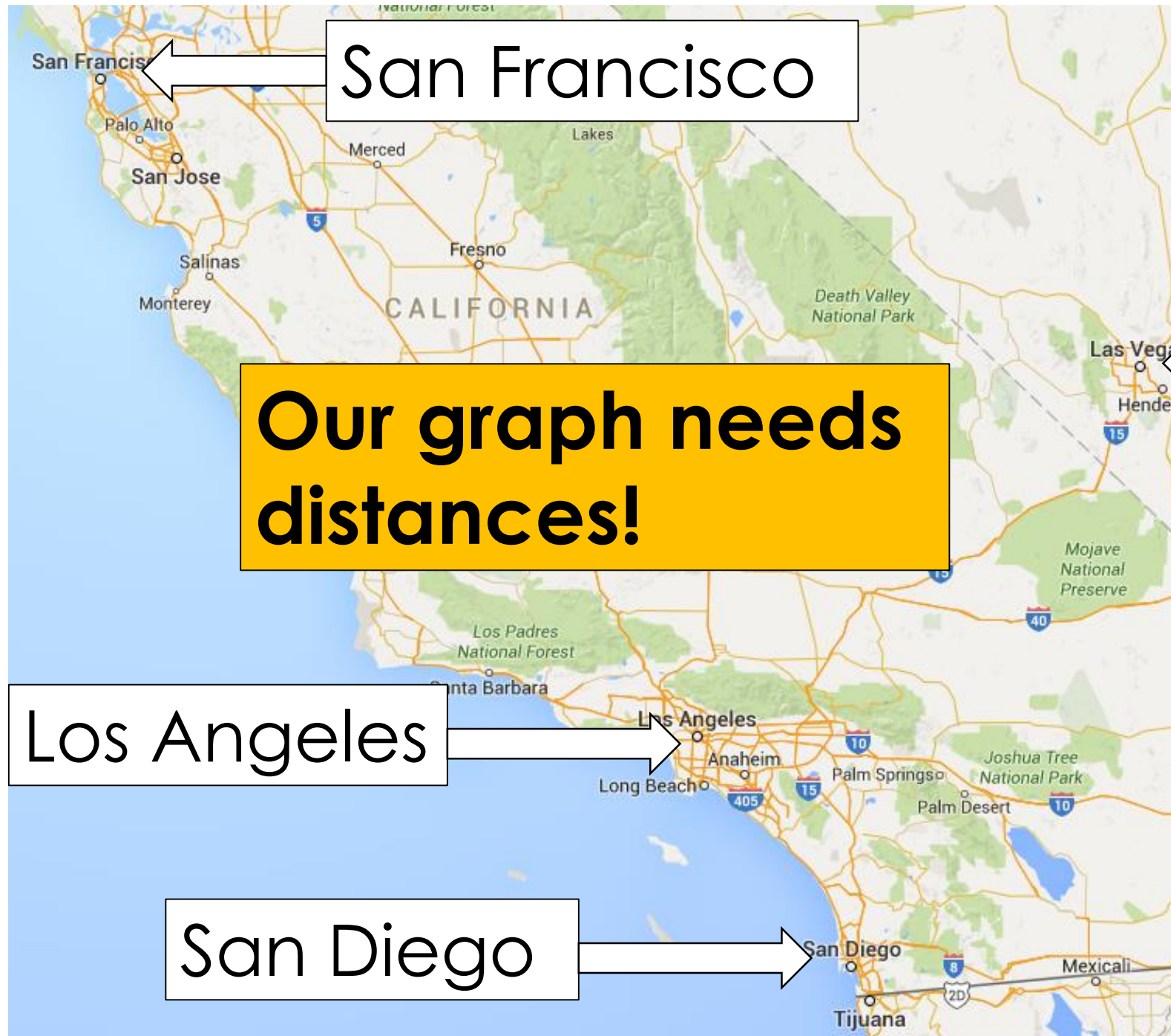
San Francisco

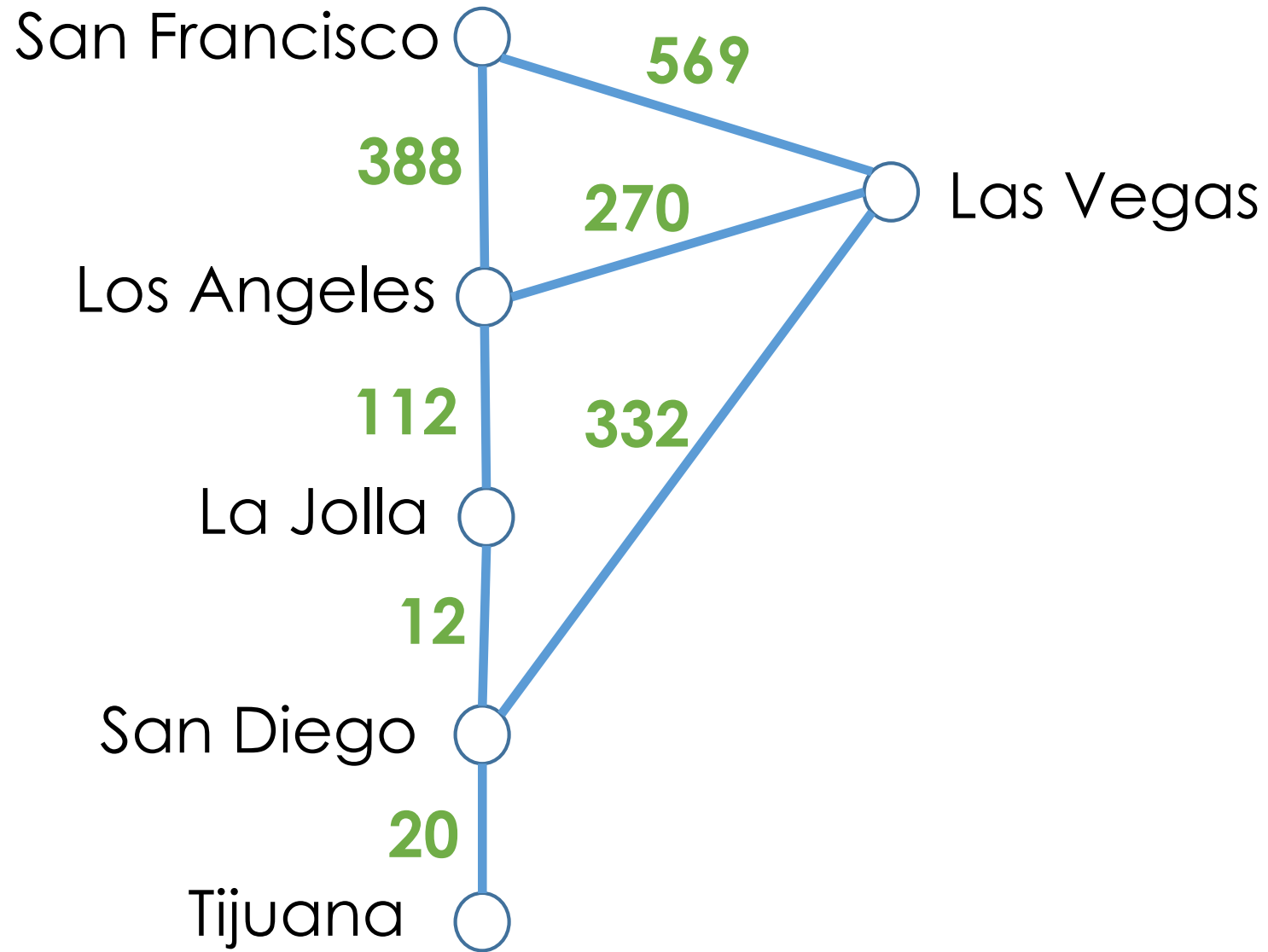
Las Vegas

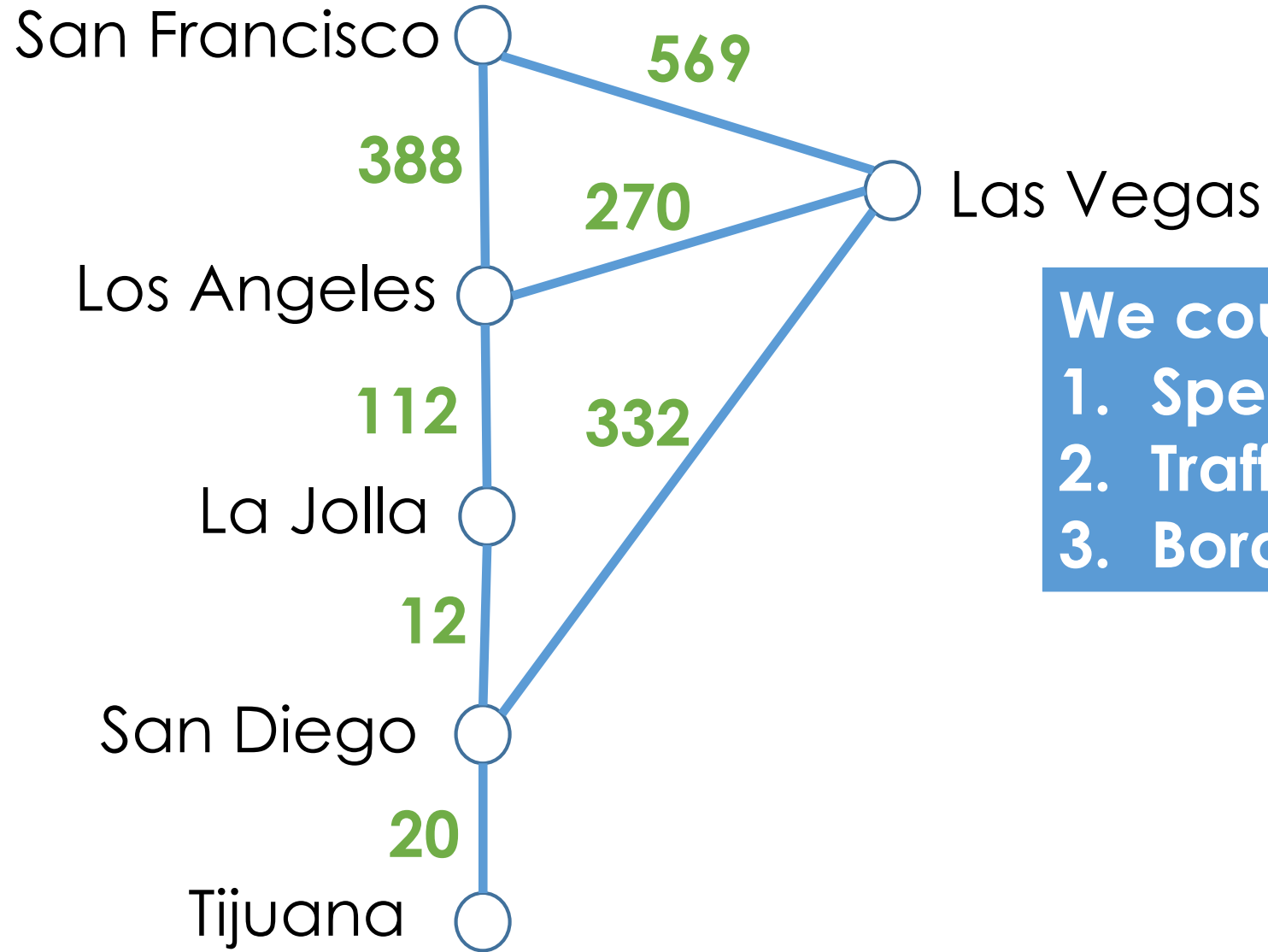
**Our graph needs distances!**

Los Angeles

San Diego

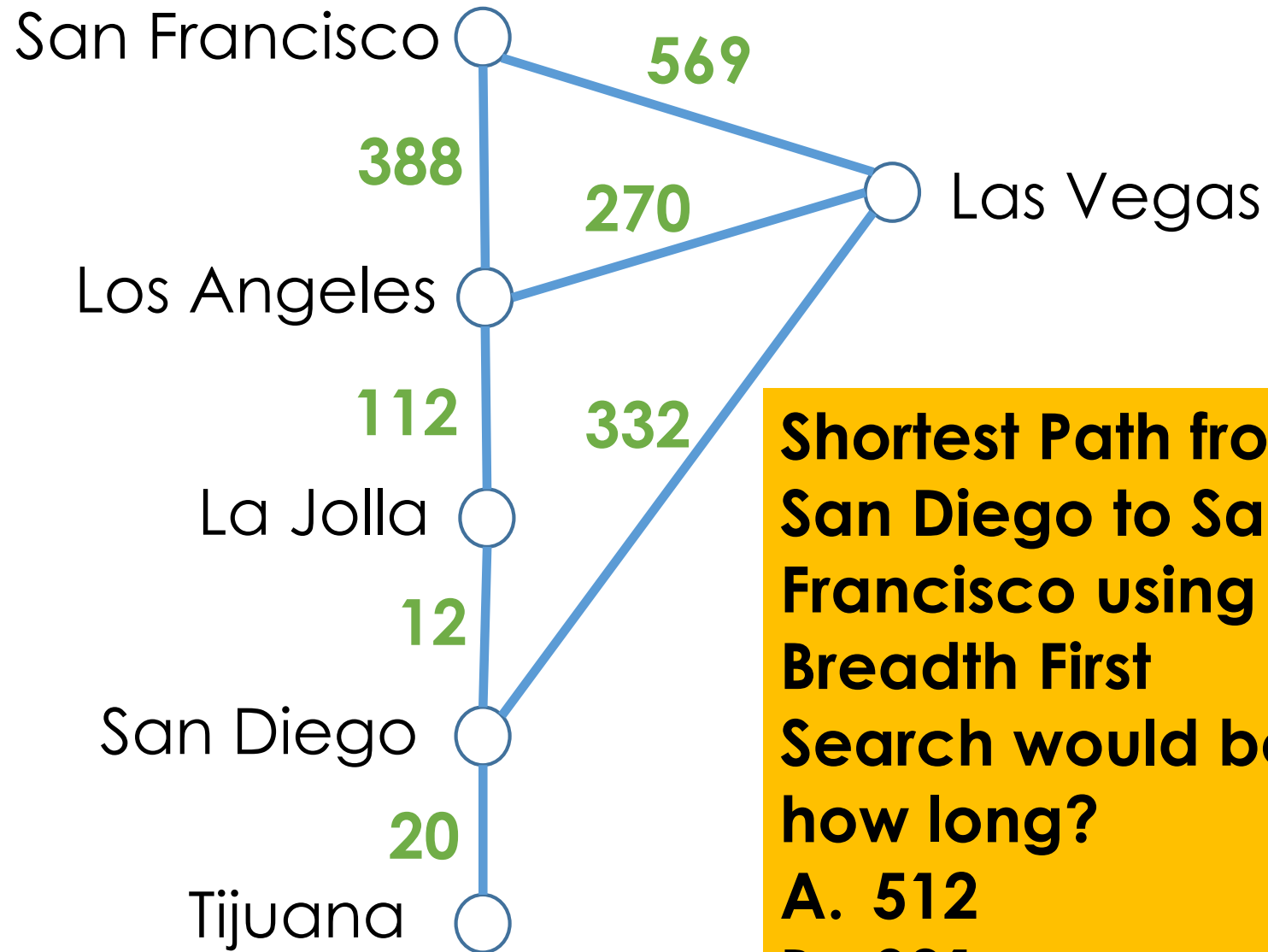






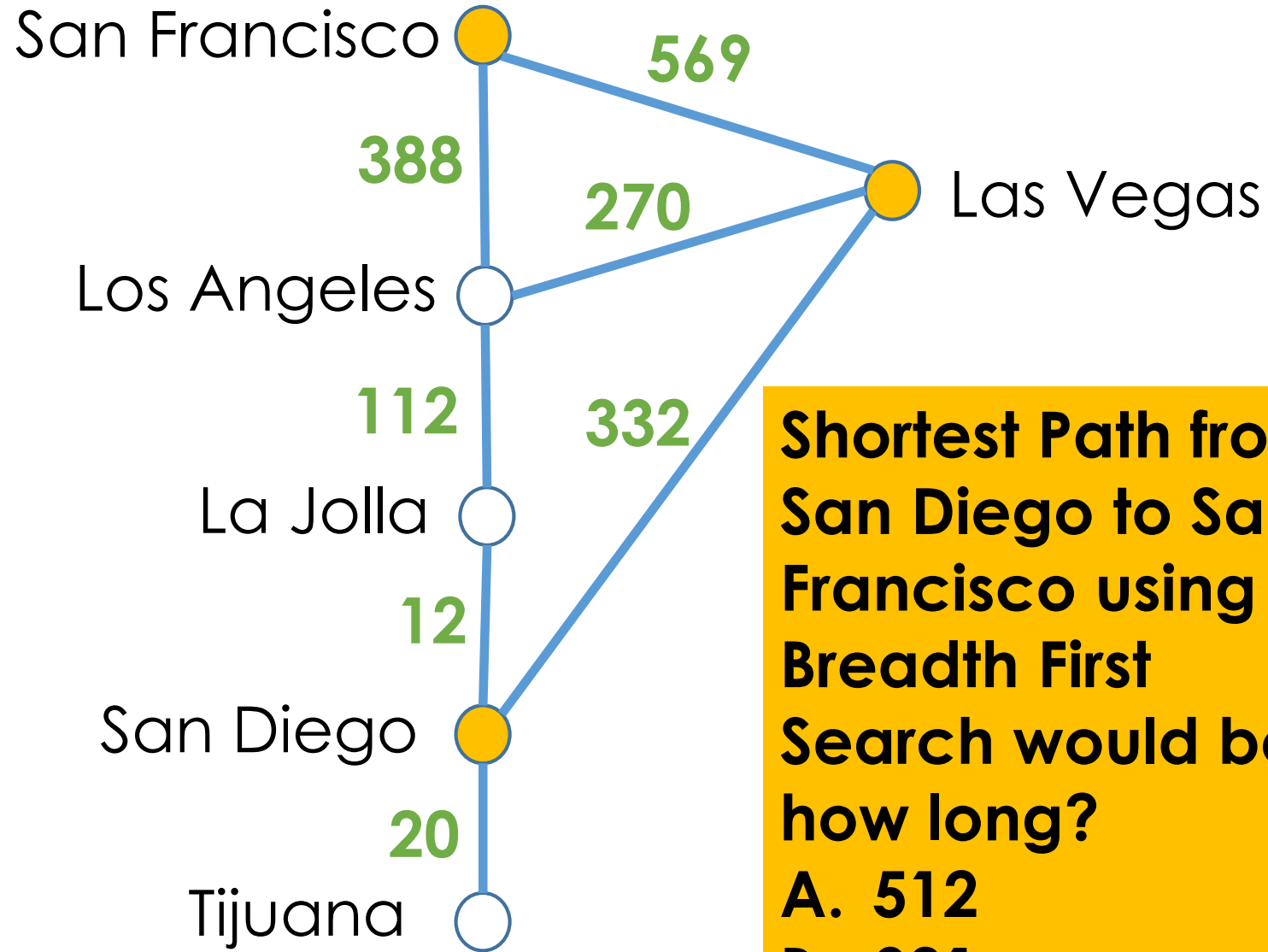
**We could add more:**

- 1. Speed Limits**
- 2. Traffic**
- 3. Border Crossing Delays**



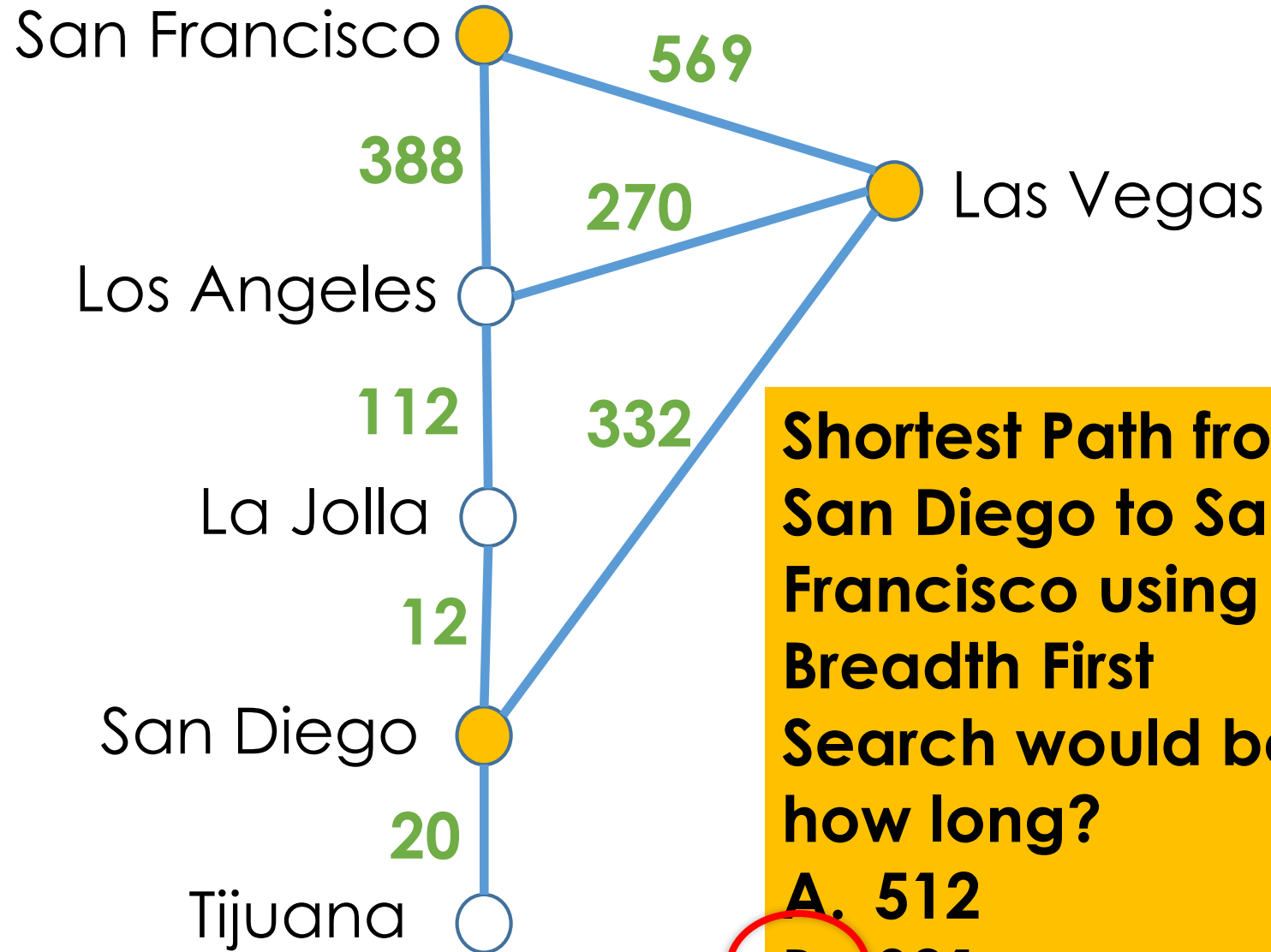
**Shortest Path from  
San Diego to San  
Francisco using  
Breadth First  
Search would be  
how long?**

- A. 512**
- B. 901**
- C. 990**



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We'll see how to do better, next!

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