

Introduction

- “How far does candy travel?” That question was the inspiration for our project.
- We choose to track two candy products (Crunch and Raisinets) made by Nestlé. The Nestlé factory in Burlington is our focal point because we have both worked there before.
- The aspects we focused on were inputs and outputs/distribution. The inputs are the ingredients that are used to make the chocolate products.
- The inputs we looked at were cocoa beans, milk powder, sugar, raisins (for Raisinets), and crisped rice (for Crunch). Another input we looked at was packaging (i.e. boxes and wrappers).
- As far as the outputs go, we looked at the distributions centers where the candy products go after they are made. Also, we looked at some stores in the La Crosse area where Nestlé products are sold.

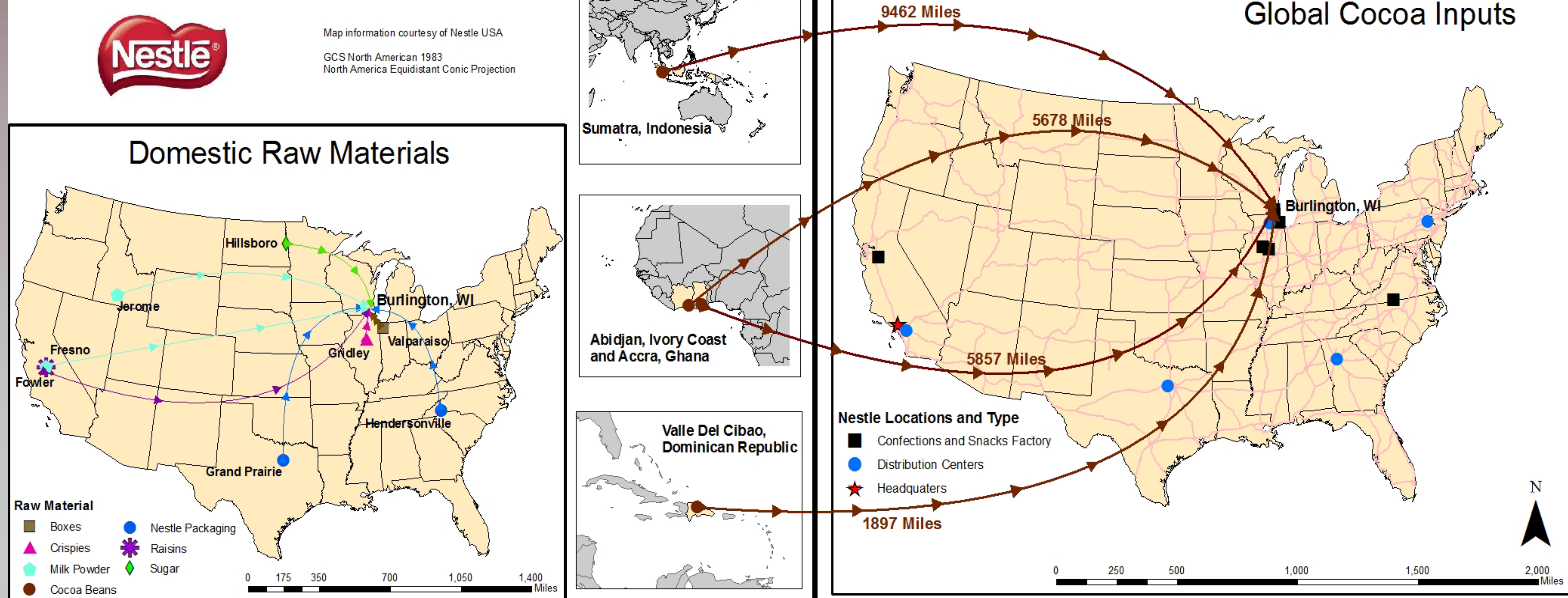
Inputs Outputs

- | | |
|---|---|
| <ul style="list-style-type: none"> • Cocoa Beans (Ghana, Ivory Coast, Dominican Republic, Indonesia) • Milk Powder (Fresno, CA and Jerome, ID) • Sugar (Hillsboro, ND) • Raisins (Fowler, CA) • Crisped Rice (Gridley, IL) • Wrappers (Hendersonville, NC and Grand Prairie, TX) • Boxes (Valparaiso, IN) | <ul style="list-style-type: none"> • Candy products such as Crunch and Raisinets |
|---|---|

Distribution Centers

- Mira Loma, CA
 - Atlanta, GA
 - DeKalb, IL
 - Allentown, PA
 - Fort Worth, TX
- *Since the DeKalb Distribution Center is the one closest to La Crosse, we are assuming that this distribution center services the La Crosse area.

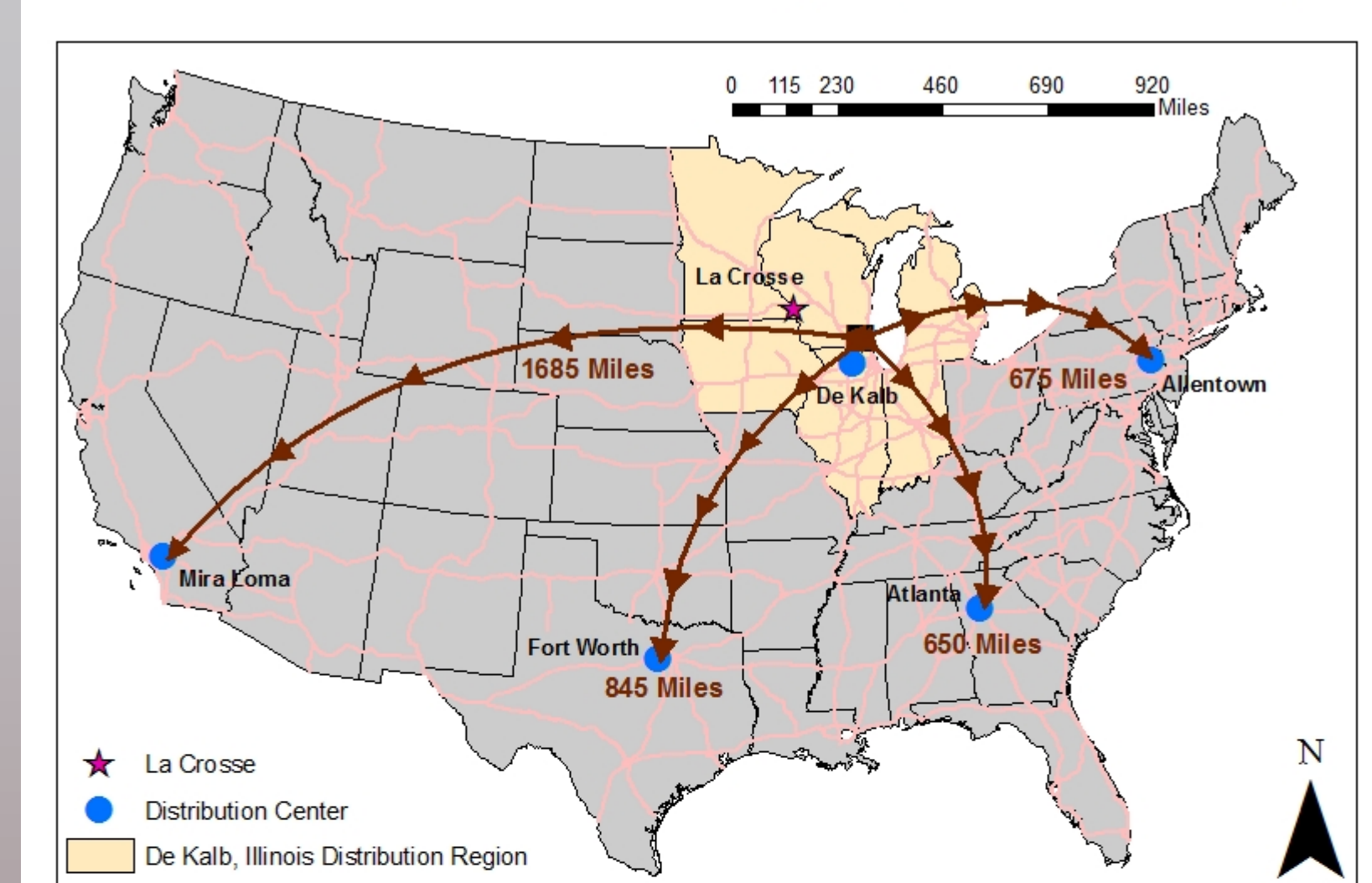
The Global Nature of Nestle Products



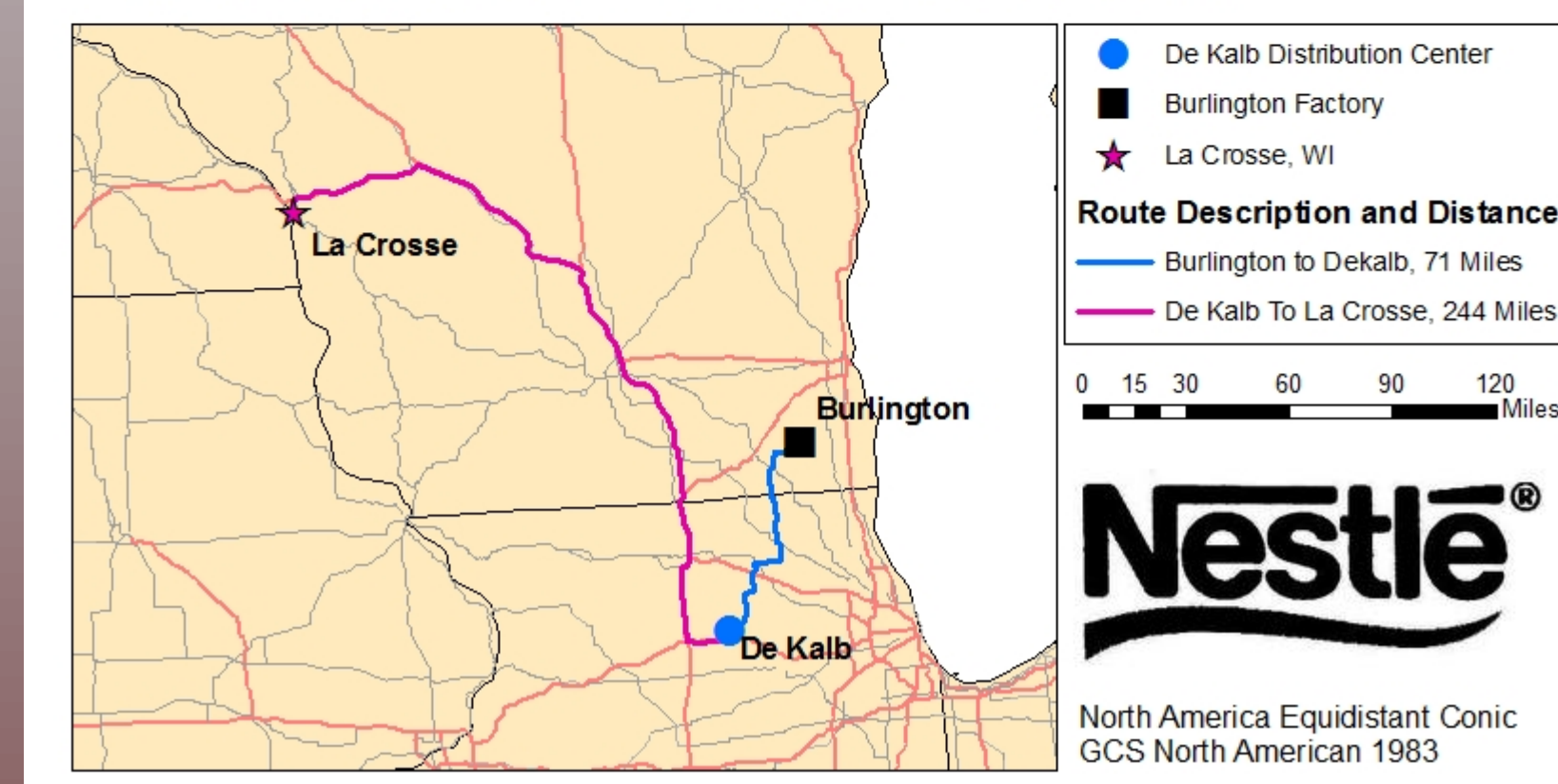
Results

- Crunch-Sample Scenario**
- Cocoa Beans from the Dominican Republic to Burlington: 1897 miles
 - Milk Powder from Fresno, CA to Burlington: 2152 miles
 - Sugar from Hillsboro, ND to Burlington: 614 miles
 - Crisped Rice from Gridley, IL to Burlington: 179 miles
 - Wrappers from Grand Prairie, TX to Burlington: 996 miles
 - Boxes from Valparaiso, IN to Burlington: 125 miles
- $1897 + 2152 + 614 + 179 + 996 + 125 = 5,963$ miles
- Distance from Burlington to the DeKalb Distribution Center: 71 miles
 - Distance from DeKalb to La Crosse: 244 miles
- $5963 + 71 + 244 = 6,278$ miles

National Distribution From Burlington, Wisconsin Factory



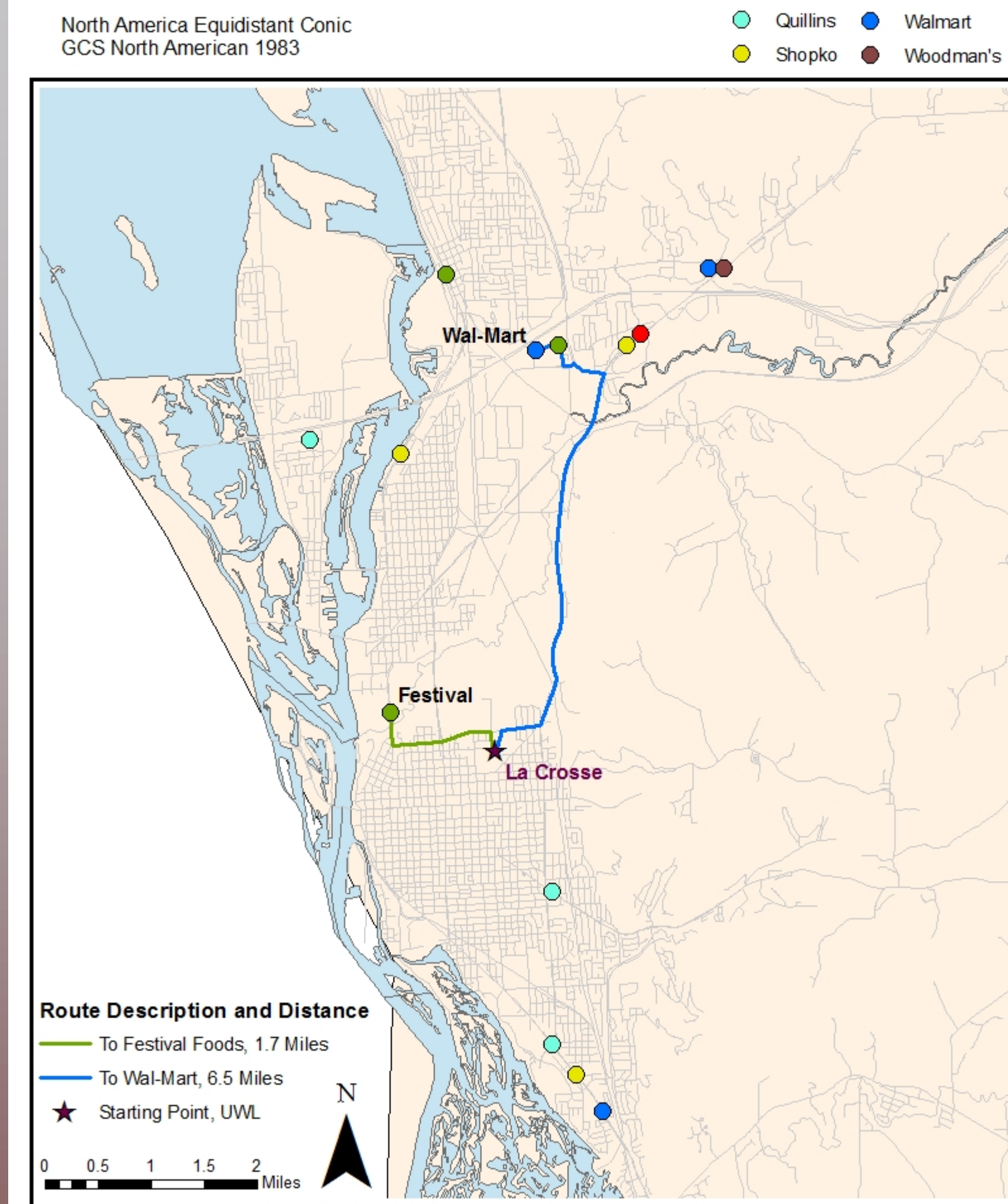
Regional Distribution From DeKalb to La Crosse



Methods

- Our first step was to obtain the data from contacts at the Nestlé plant in Burlington. This process was difficult because much of the data is not disclosed or made available by the company.
- Once we got the ingredient and city location from Nestlé, we had to display it on the map.
- Since our data involved cities outside of the USA, where quality city databases and base maps are not as easily available, we needed to use x-y coordinates to locate the cities on a world base map provided by our ArcGIS software.
- Some of the bigger input cities in the USA were available in a pre-made cities layer, but then we needed to create a database with our own information like input type and join this database to the existing cities database.

Route Distance From UWL To Shopping Centers



Analysis

- Our maps made it easier to actually see the great distances Nestlé products travel both before and after they are physically made at the factory.
- The step by step mapping process helped shed some light on the extremely complex economic world system large companies operate in.
- Since we now have the distances traveled, as well as a visual representation of these distances, we can place more actual meaning on the total distances that go into this candy.

Conclusion

- Sample Mileage**
- the distance Crunch traveled: 6,278 miles
 - distance to from UW-L to Wal-Mart in Onalaska: 6.5 miles
 - distance from UW-L to Festival Foods in La Crosse: 1.7 miles
- *As you can see, the distance one of us needs to travel to buy a Nestlé candy bar is a minuscule fraction of the distances that went into its creation and distribution. Next time you bite into your favorite Nestlé creation, just think about how much mileage went into creating that product. Hopefully this project helped put the worldly taste of chocolate into perspective.

References

- Personal Communication with Kurt Robers (Cost Manager) and Kurt Strong (Supply Chain Manager) *both are employed at the Nestlé factory in Burlington, WI
- Nestlé website (<http://www.nestleusa.com/>)
- US Census Bureau Tiger Files (<http://www.census.gov/geo/www/tiger/>)
- ArcGIS base maps from Environmental Systems Research Institute, Inc. (ESRI)