FREIGHT INNOVATIONS FOR URBAN FOOD RESILIENCY

Nancy Chachula

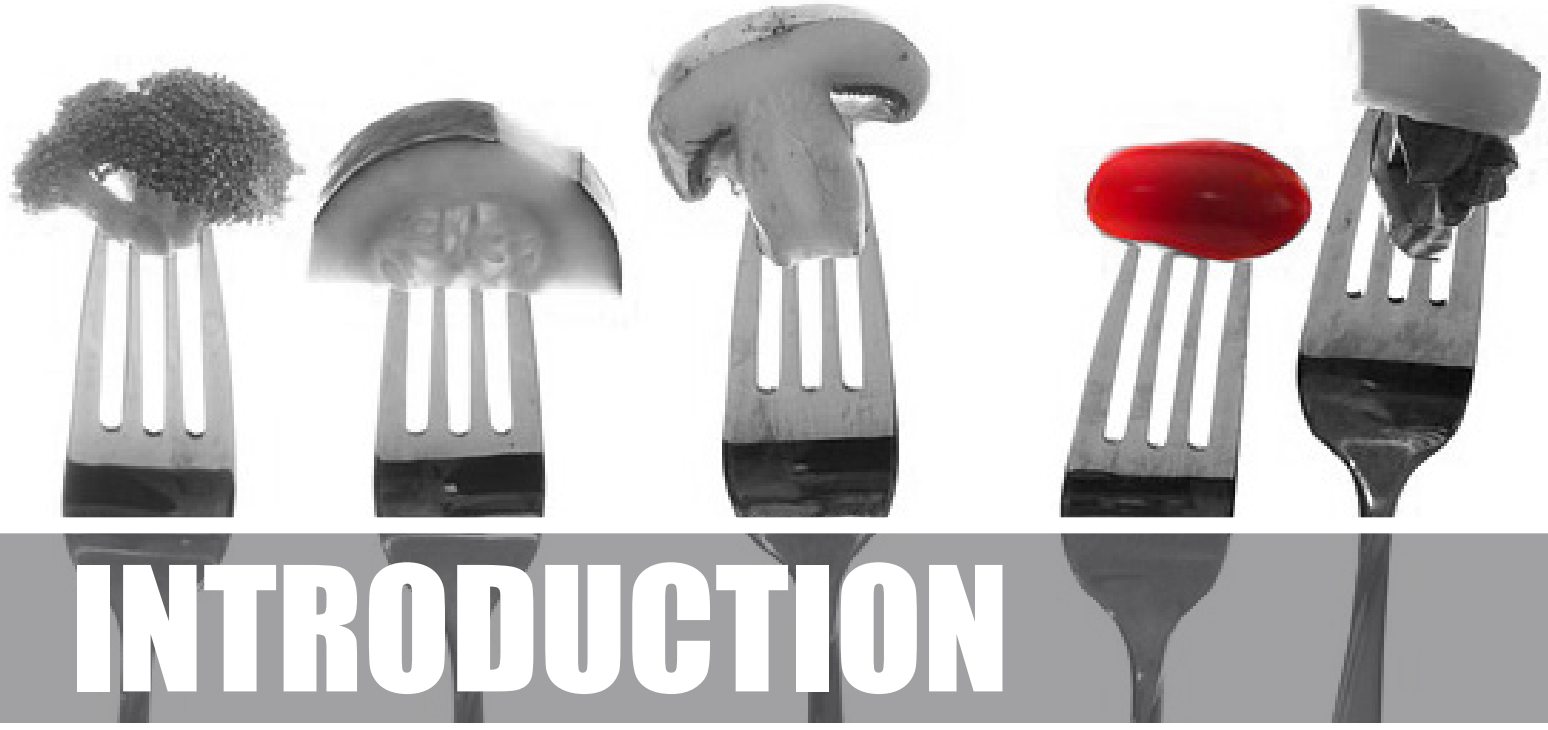
Fall 2014

OBJECTIVES

Introduction and context

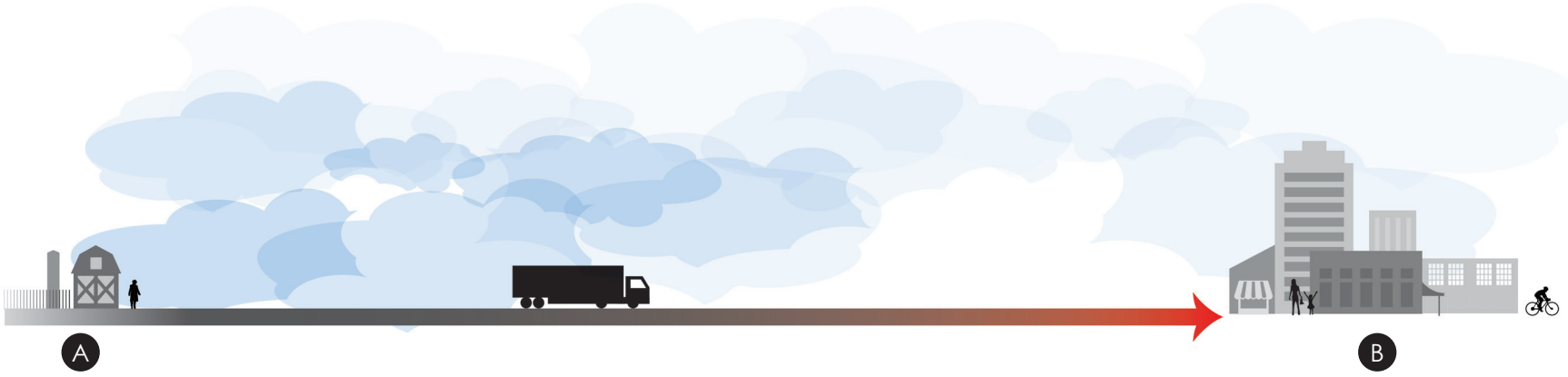
Project Focus & Goals

Planning Strategy



INTRODUCTION

EXISTING FOOD LOGISTIC MODEL



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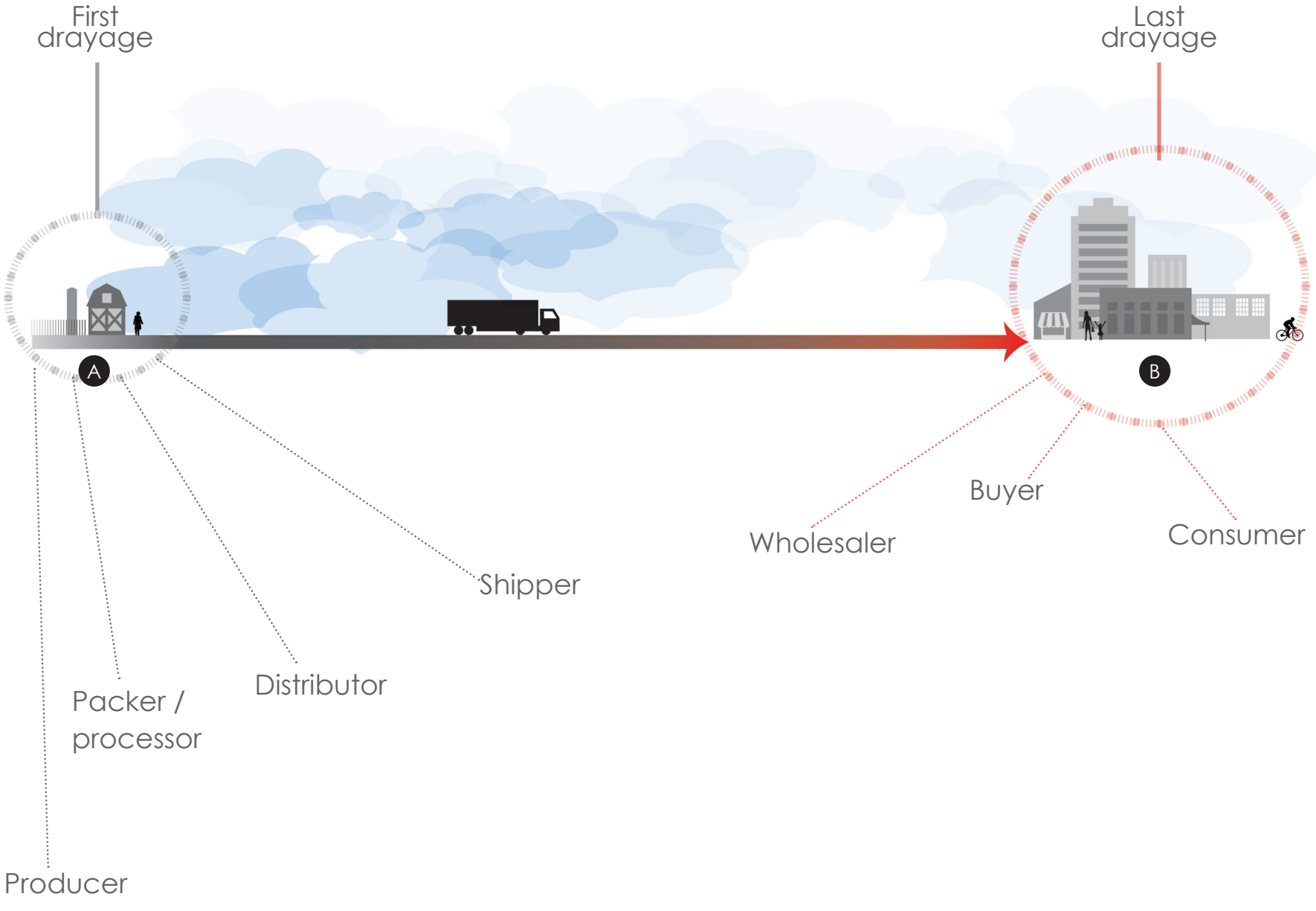

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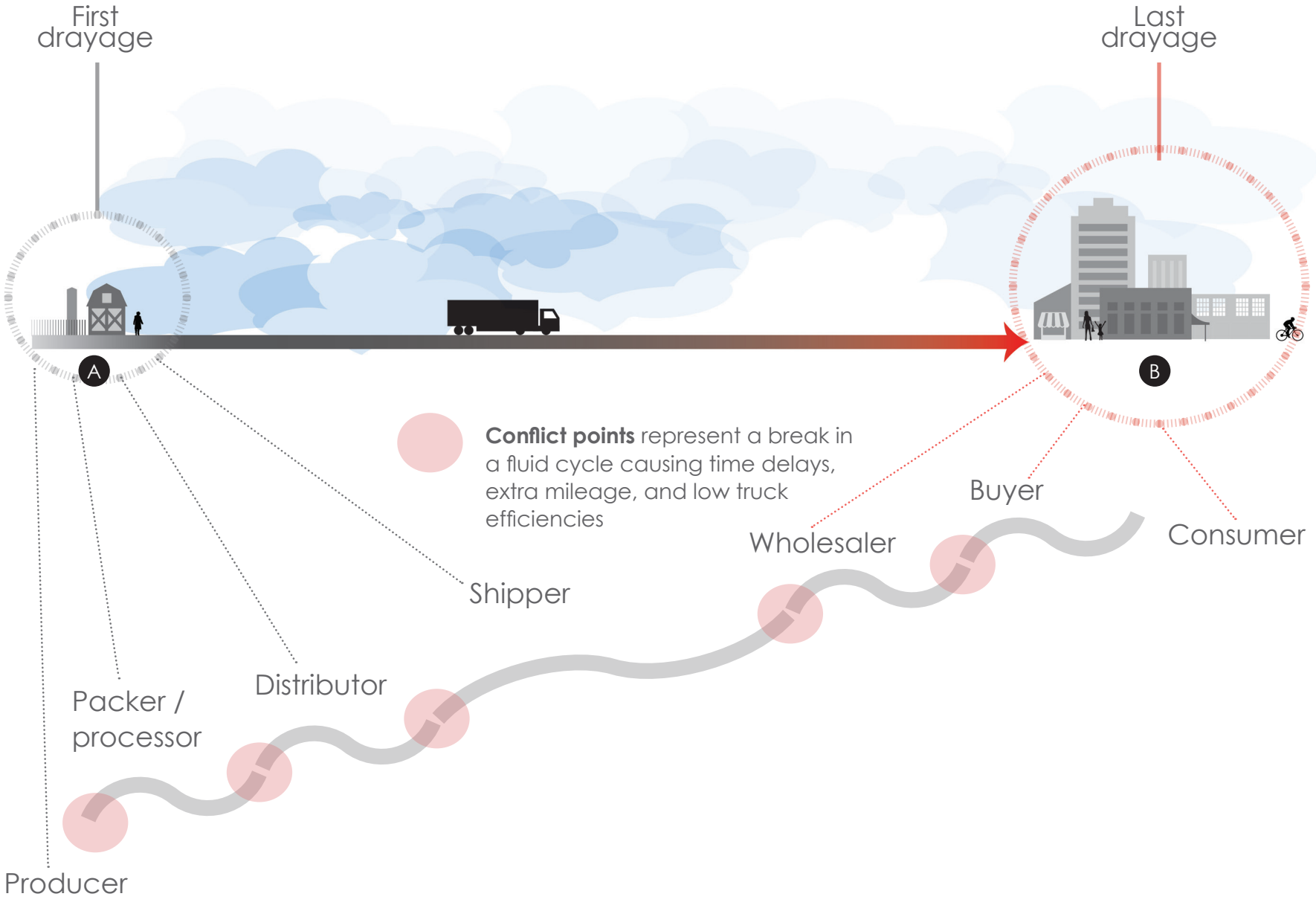
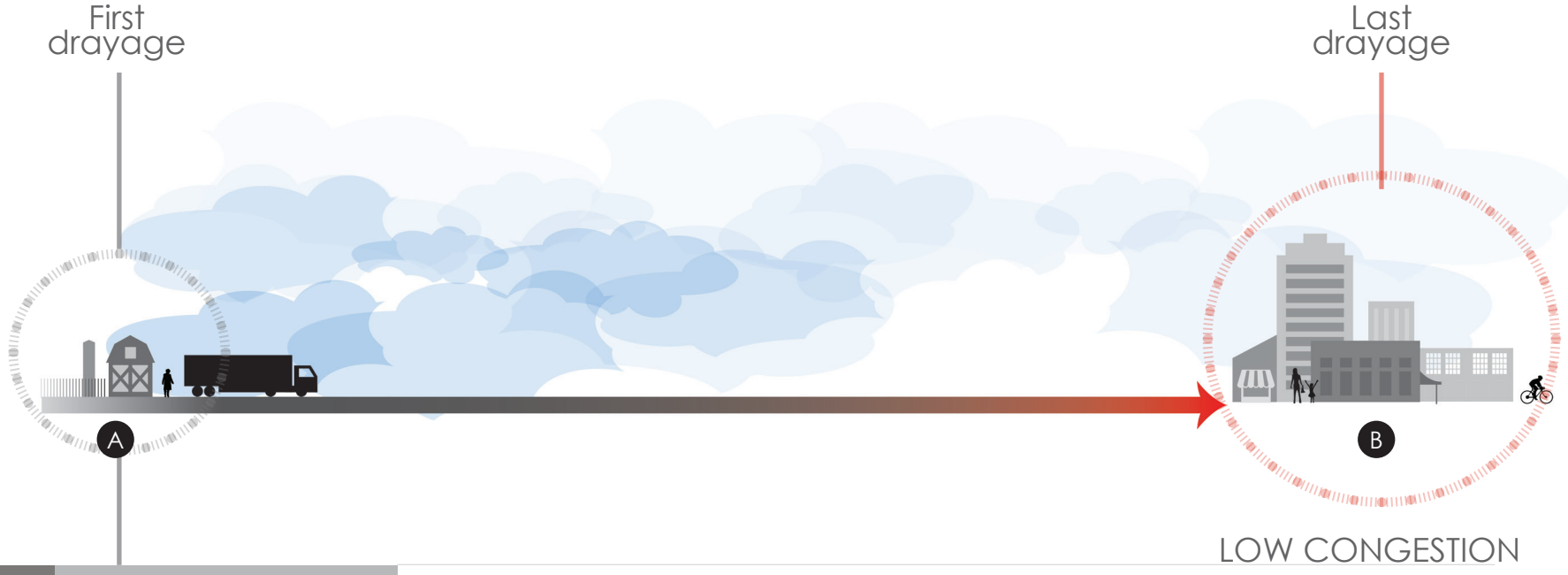


FOOD FREIGHT CHALLENGES



LOW CONGESTION

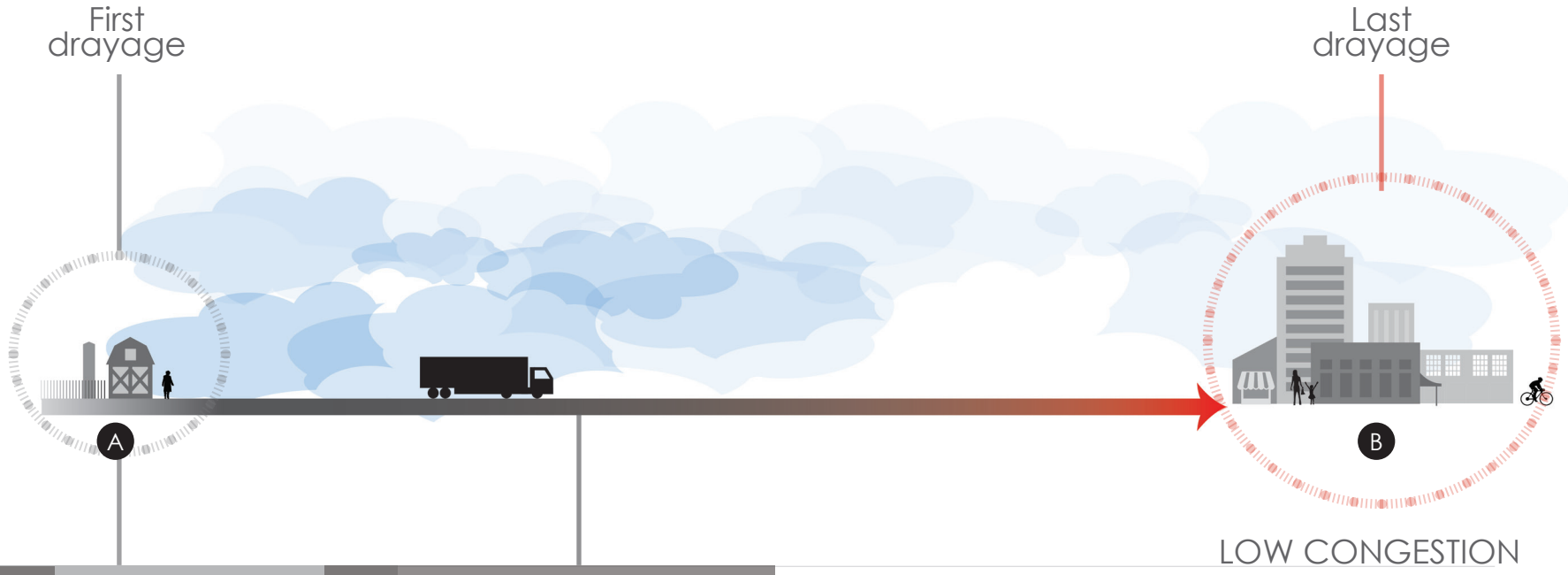
PERI-RURAL

- Docking delays
- Rural-urban road mix
- Variable speeds
- Low efficiencies

CONGESTION GRAPH

HIGH CONGESTION

FOOD FREIGHT CHALLENGES



LOW CONGESTION

RURAL

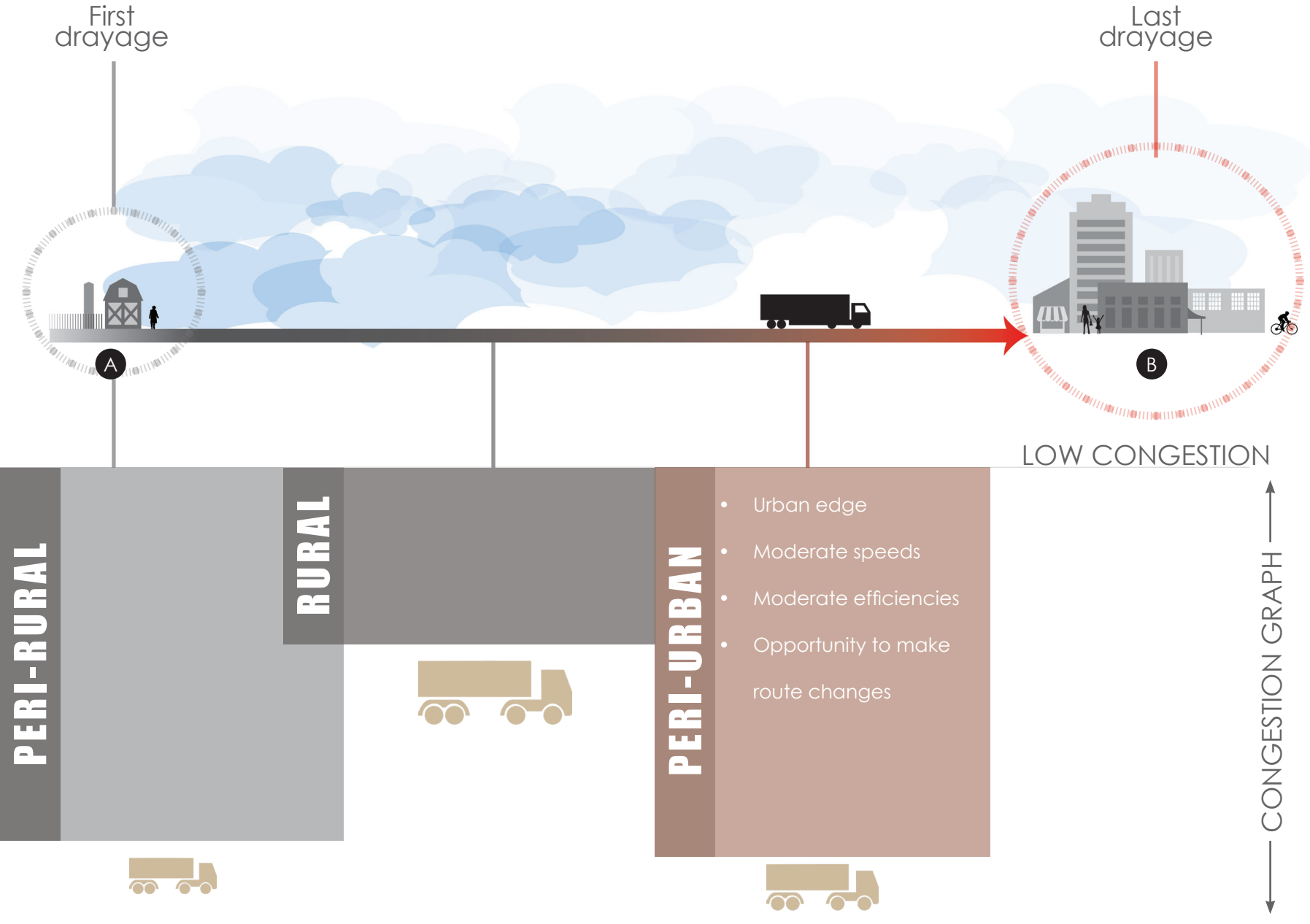
- Open road
- Consistent speeds
- Highest efficiencies

PERI-RURAL

CONGESTION GRAPH

HIGH CONGESTION

FOOD FREIGHT CHALLENGES



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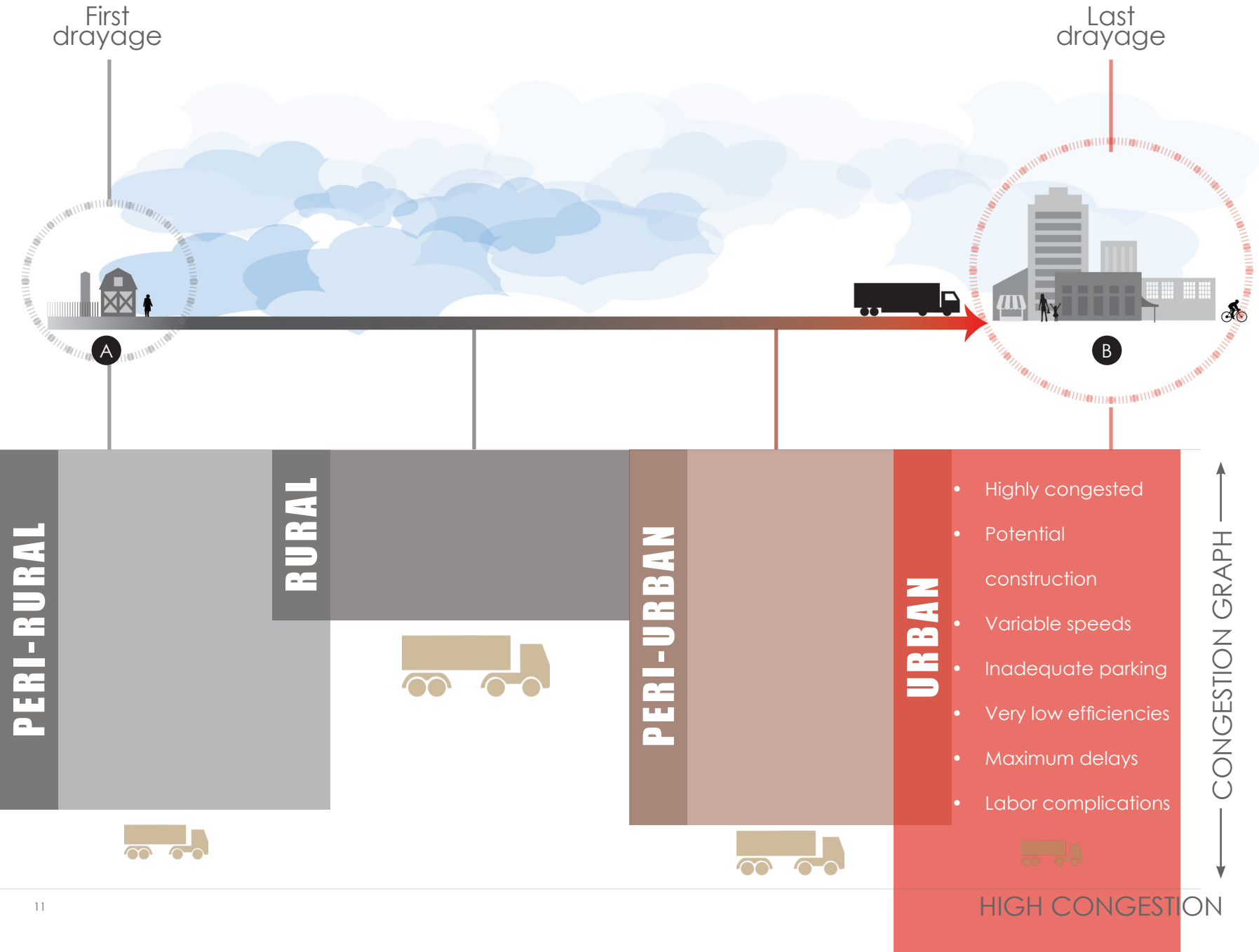
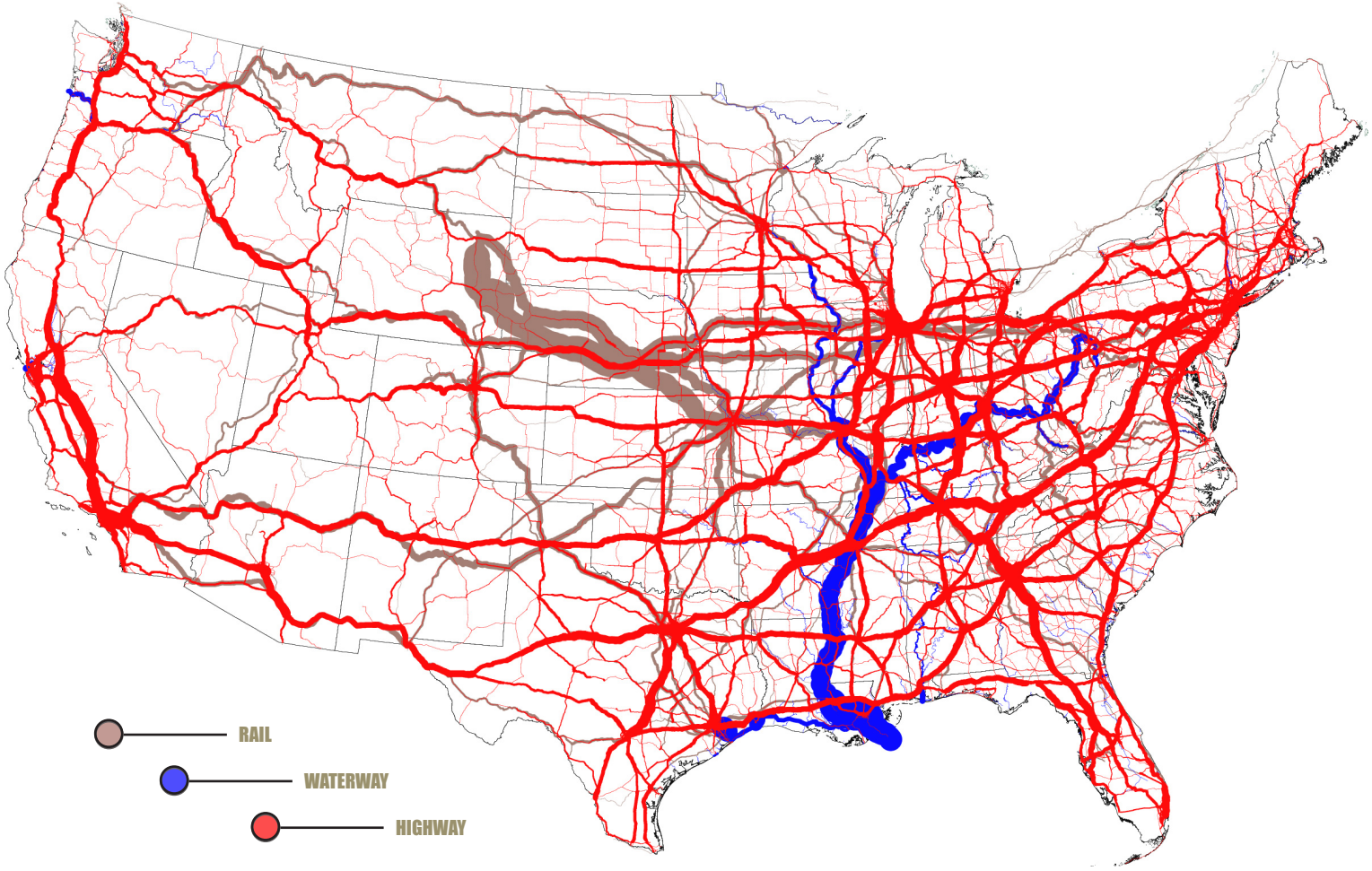


CONTEXT

FREIGHT INFRASTRUCTURE



Source: FAF, 2010

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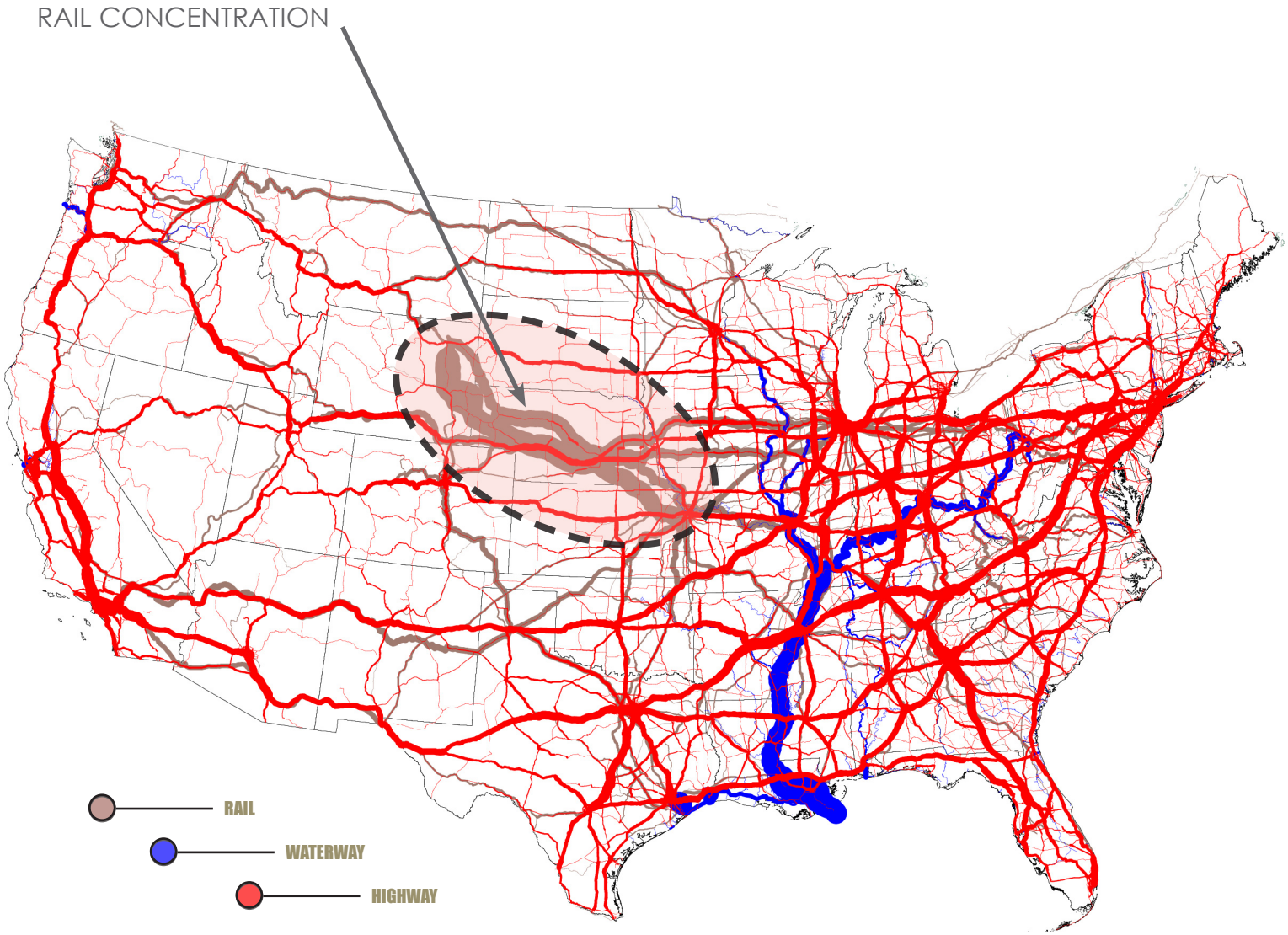

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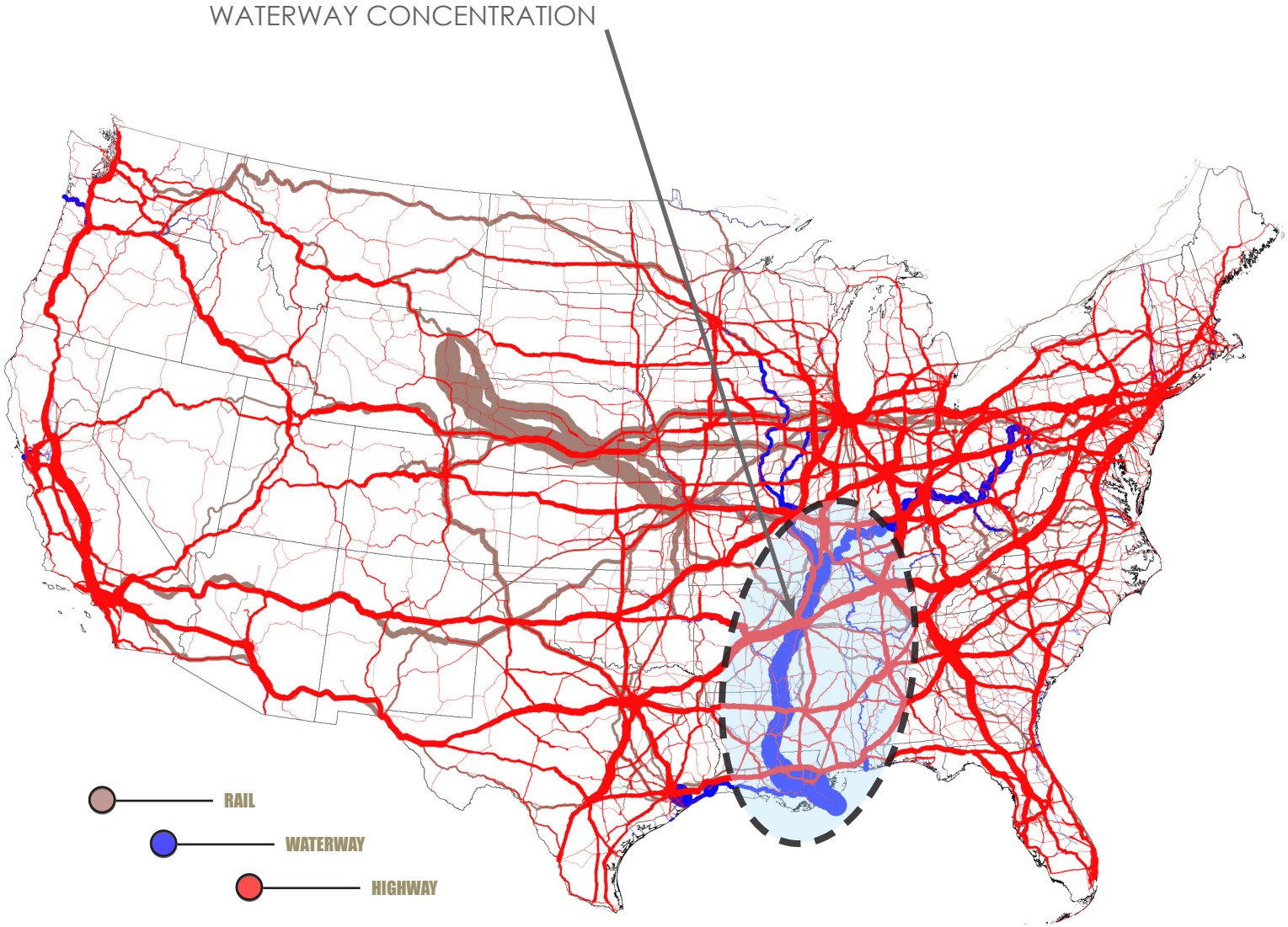


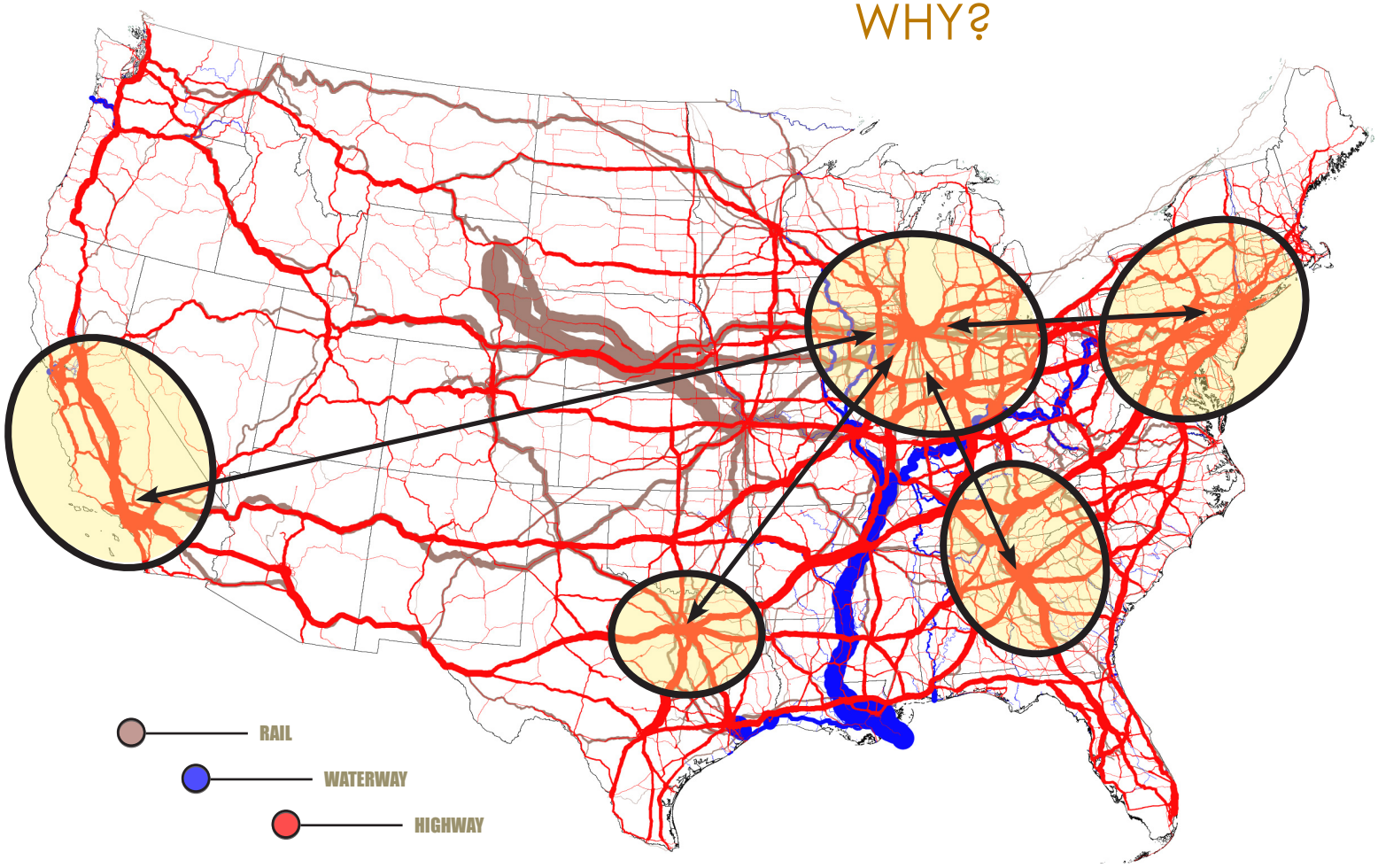
Source: FAF, 2010

FREIGHT INFRASTRUCTURE

TRUCK FREIGHT CONCENTRATIONS

ISOLATED TO MEGA-REGIONS

WHY?



Source: FAF, 2010

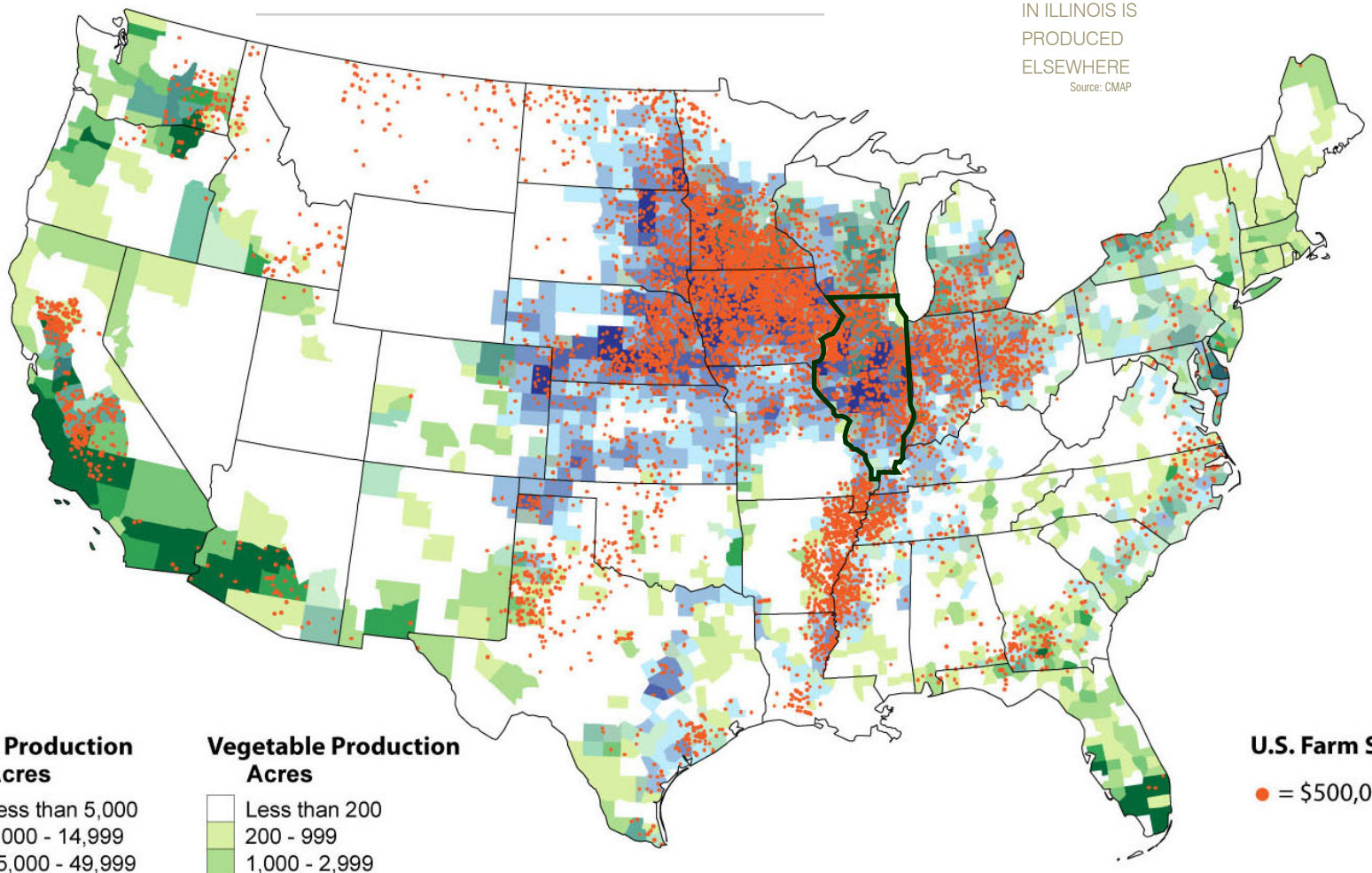
FOOD SHED

94%

OF FOOD CONSUMED IN ILLINOIS IS PRODUCED ELSEWHERE

Source: CMAP

AGGLOMERATED CROPS



Corn Production Acres

- Less than 5,000
- 5,000 - 14,999
- 15,000 - 49,999
- 50,000 - 99,999
- 100,000 - 149,999
- 150,000 or more

Vegetable Production Acres

- Less than 200
- 200 - 999
- 1,000 - 2,999
- 3,000 - 6,999
- 7,000 - 14,999
- 15,000 or more

U.S. Farm Subsidies

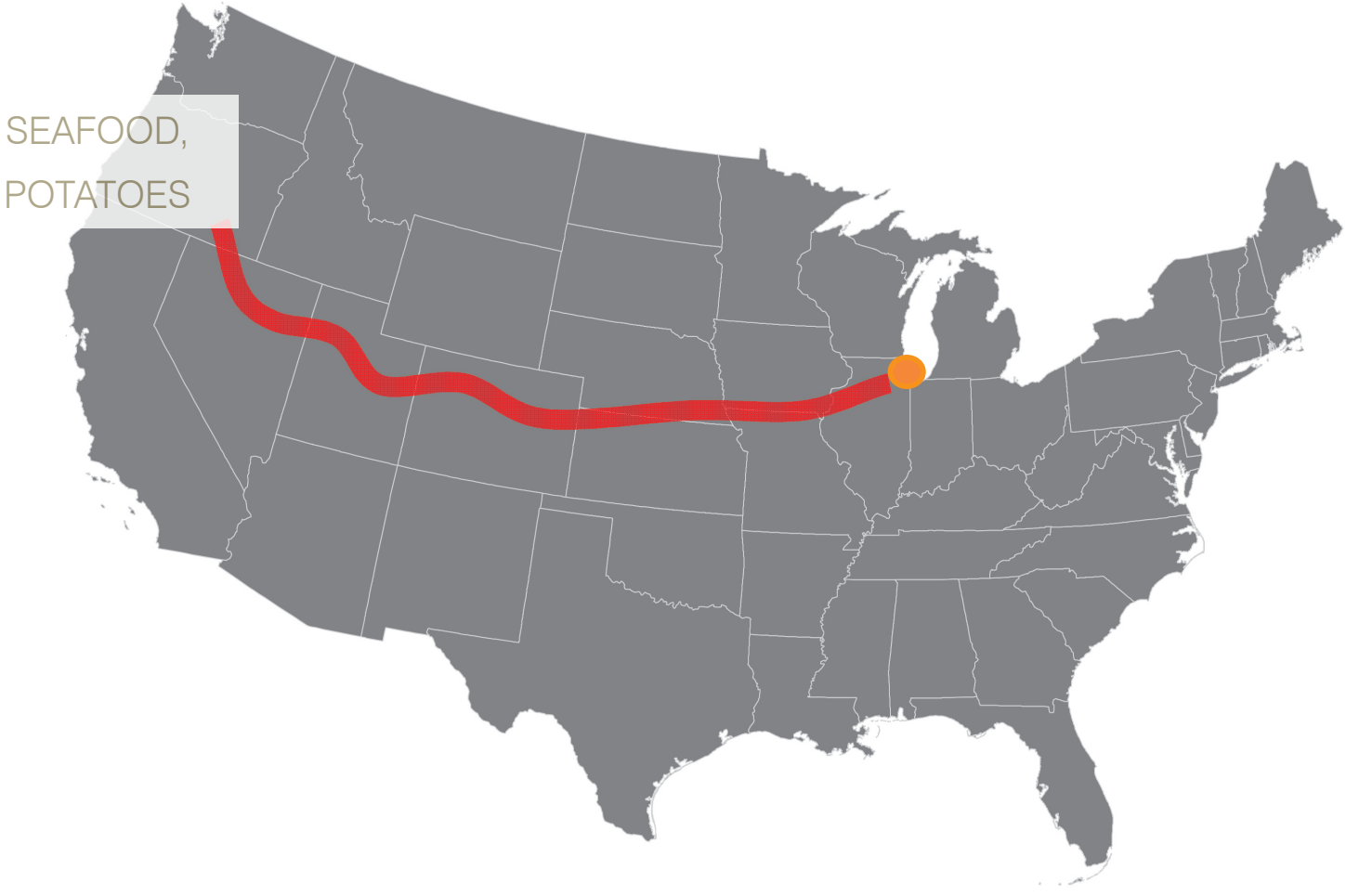
● = $500,000

Source: Urban Design Lab, based on USDA National Agricultural Statistics Service 2002 Census of Agriculture

FOOD FREIGHT FLOWS

CHICAGO

MAIN CROP FLOWS



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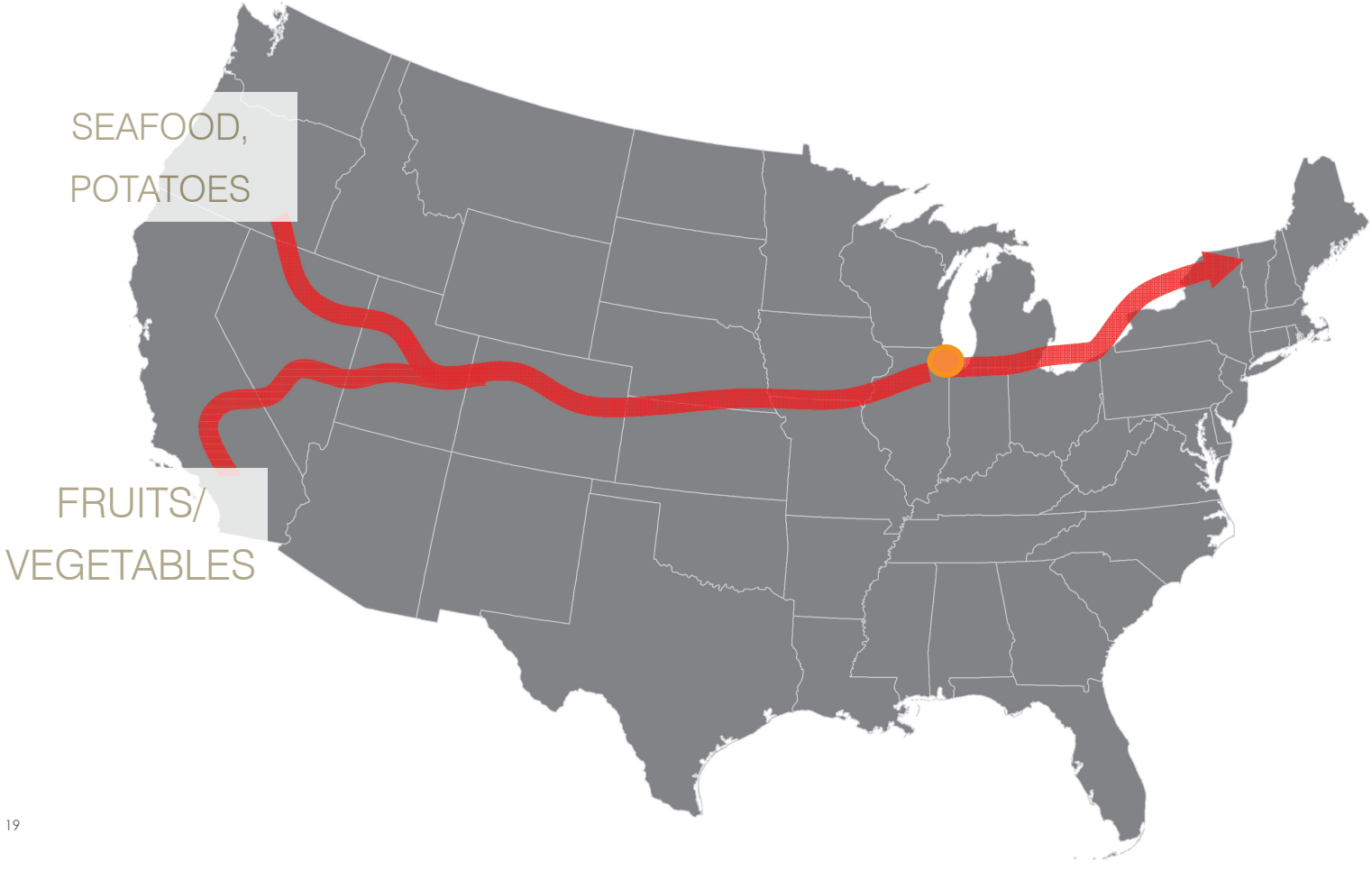

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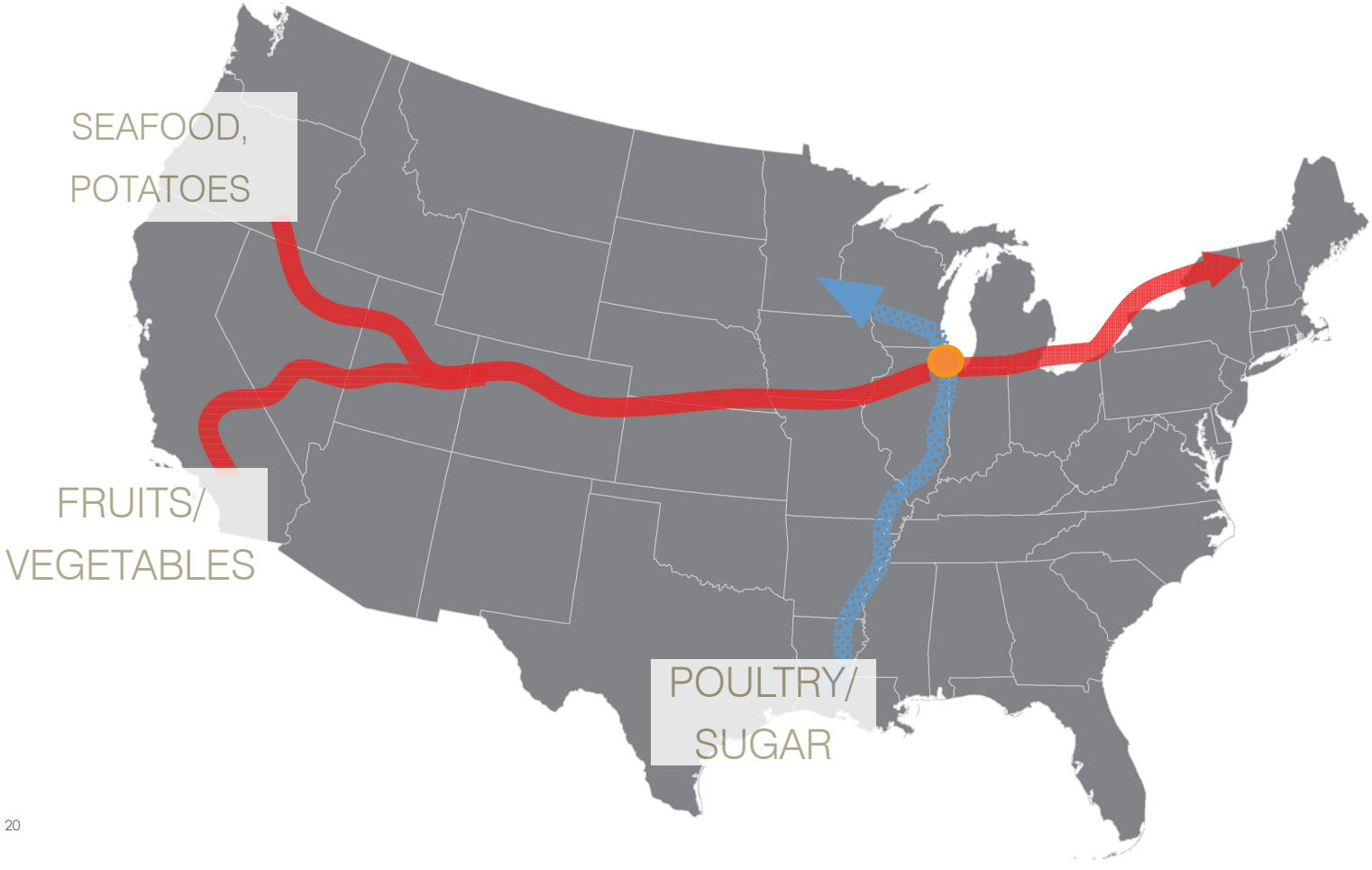

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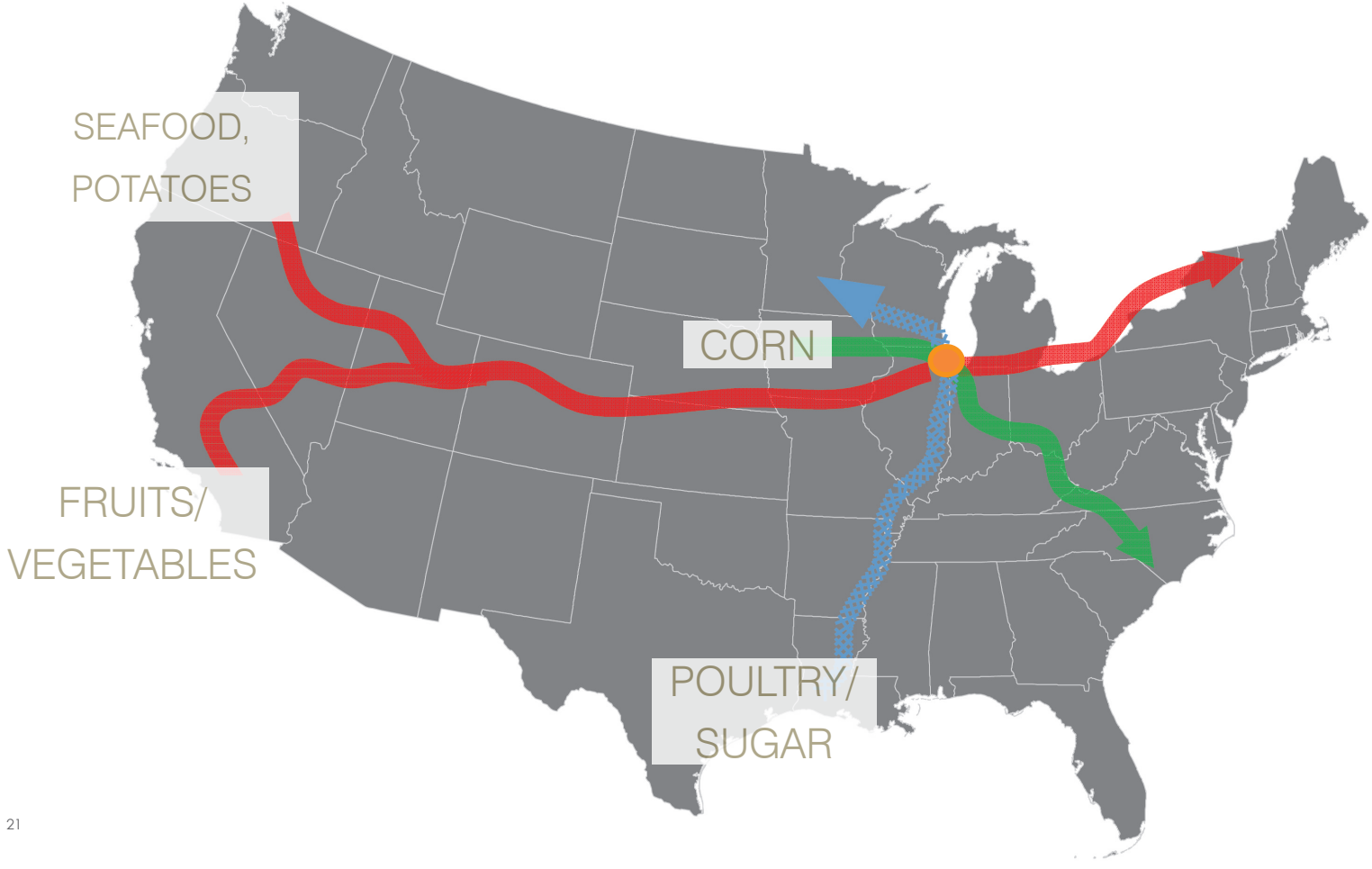


FOOD FREIGHT FLOWS

CHICAGO

TOTAL FOOD FLOWS BY TRUCK

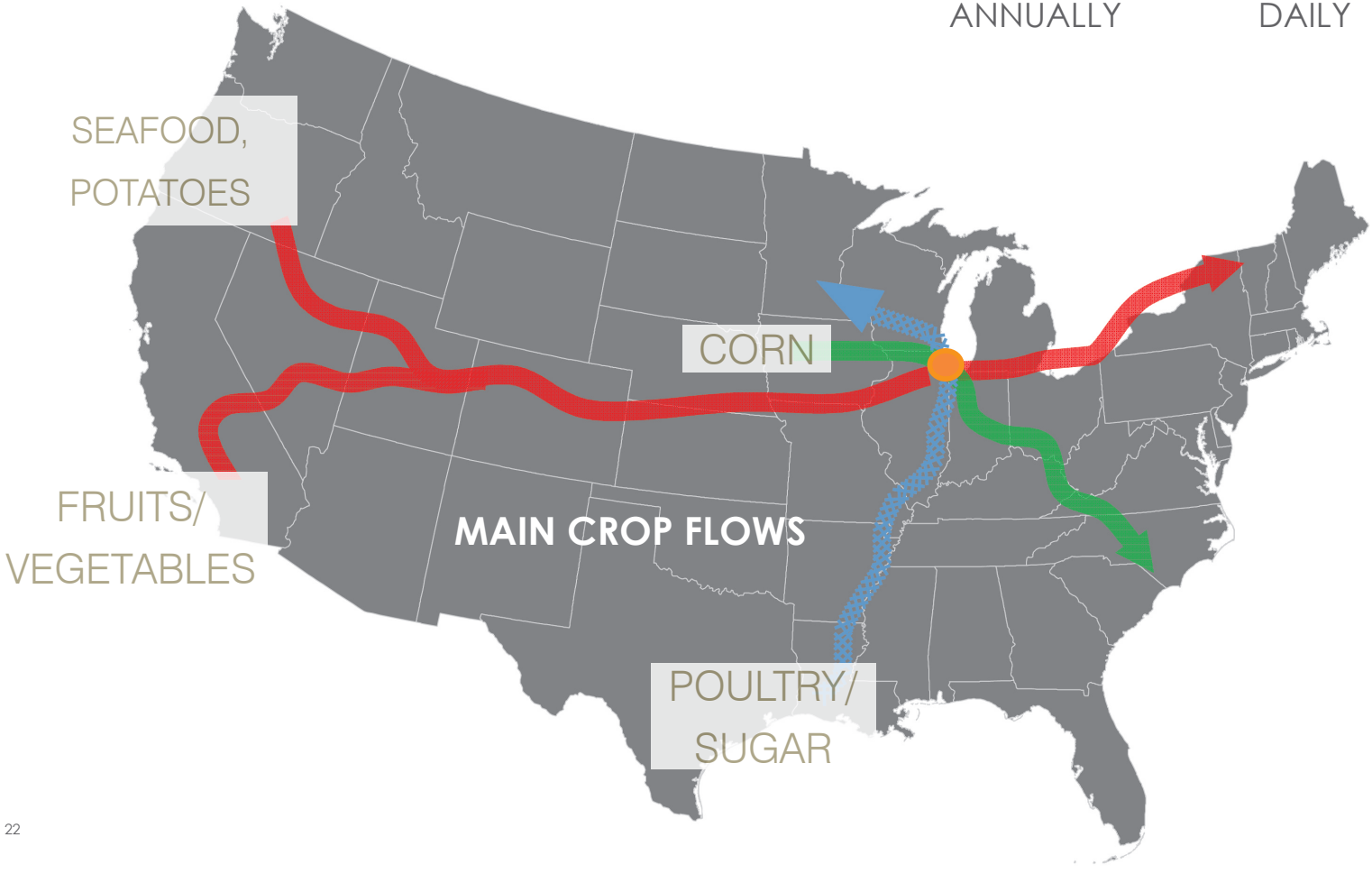
168 MILLION TONS
232 BILLION DOLLARS

	WEIGHT	VALUE
INBOUND	66 MILLION TONS	$95 BILLION
OUTBOUND	65 MILLION TONS	$88 BILLION
PASS THROUGH	37 MILLION TONS	$49 BILLION

Source: FAF, 2007

ANNUALLY

DAILY

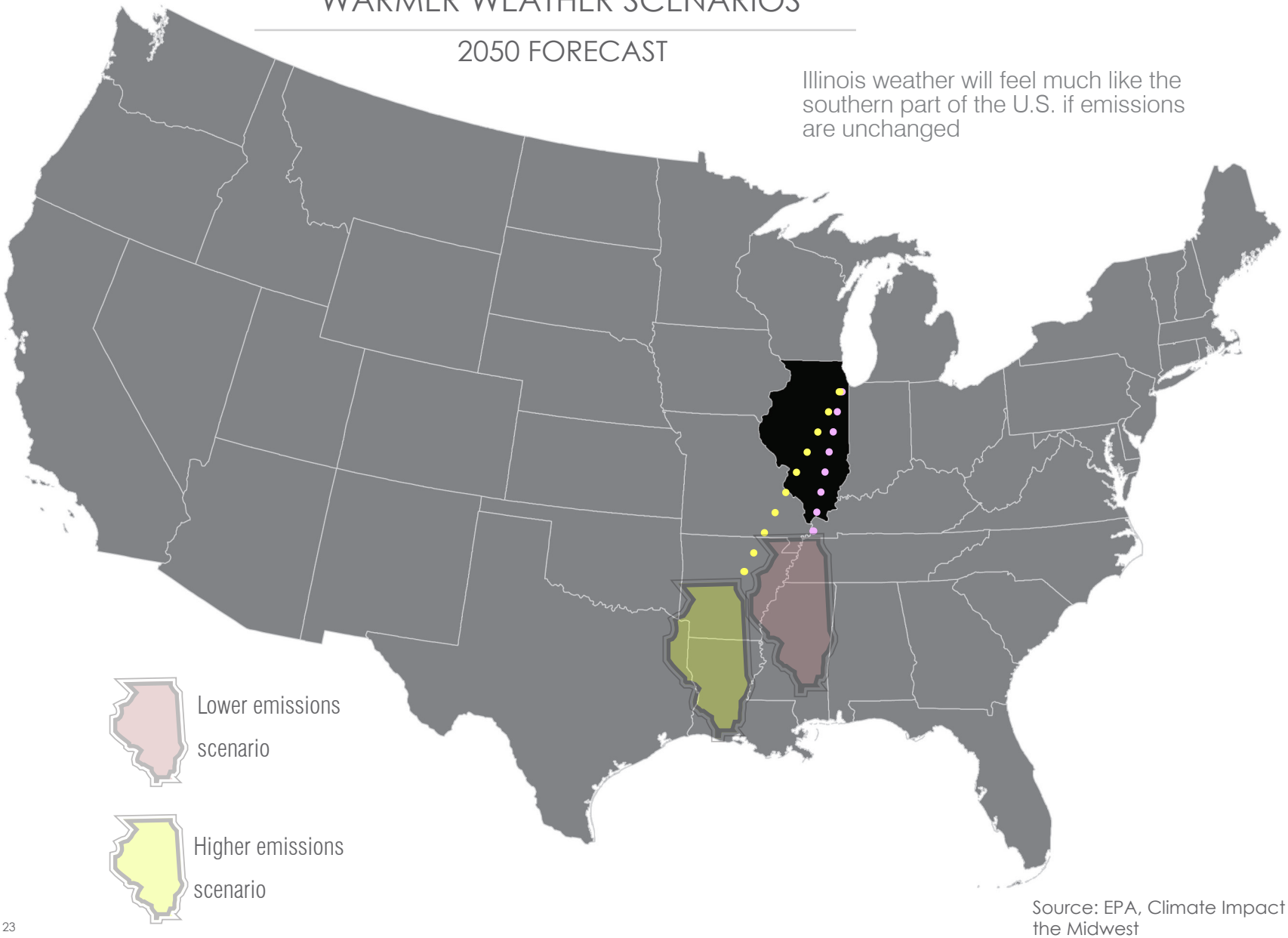


CLIMATE EFFECTS: RISING TEMPERATURES

WARMER WEATHER SCENARIOS

2050 FORECAST

Illinois weather will feel much like the southern part of the U.S. if emissions are unchanged



Source: EPA, Climate Impact in the Midwest

URBAN FOOD RESILIENCY

ABILITY TO ADAPT TO CHANGE

MEASURES

CAPABILITY TO ACT

SWIFTNESS TO ACTION

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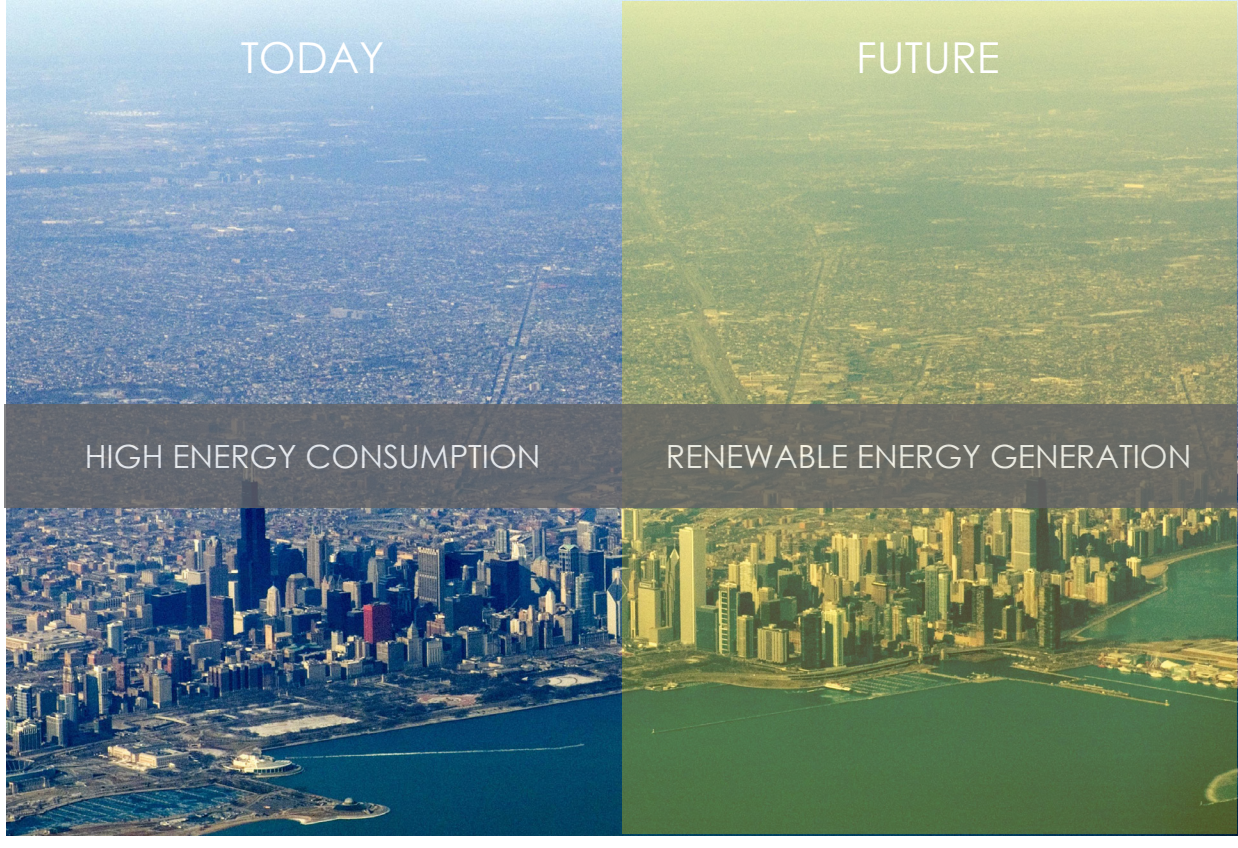

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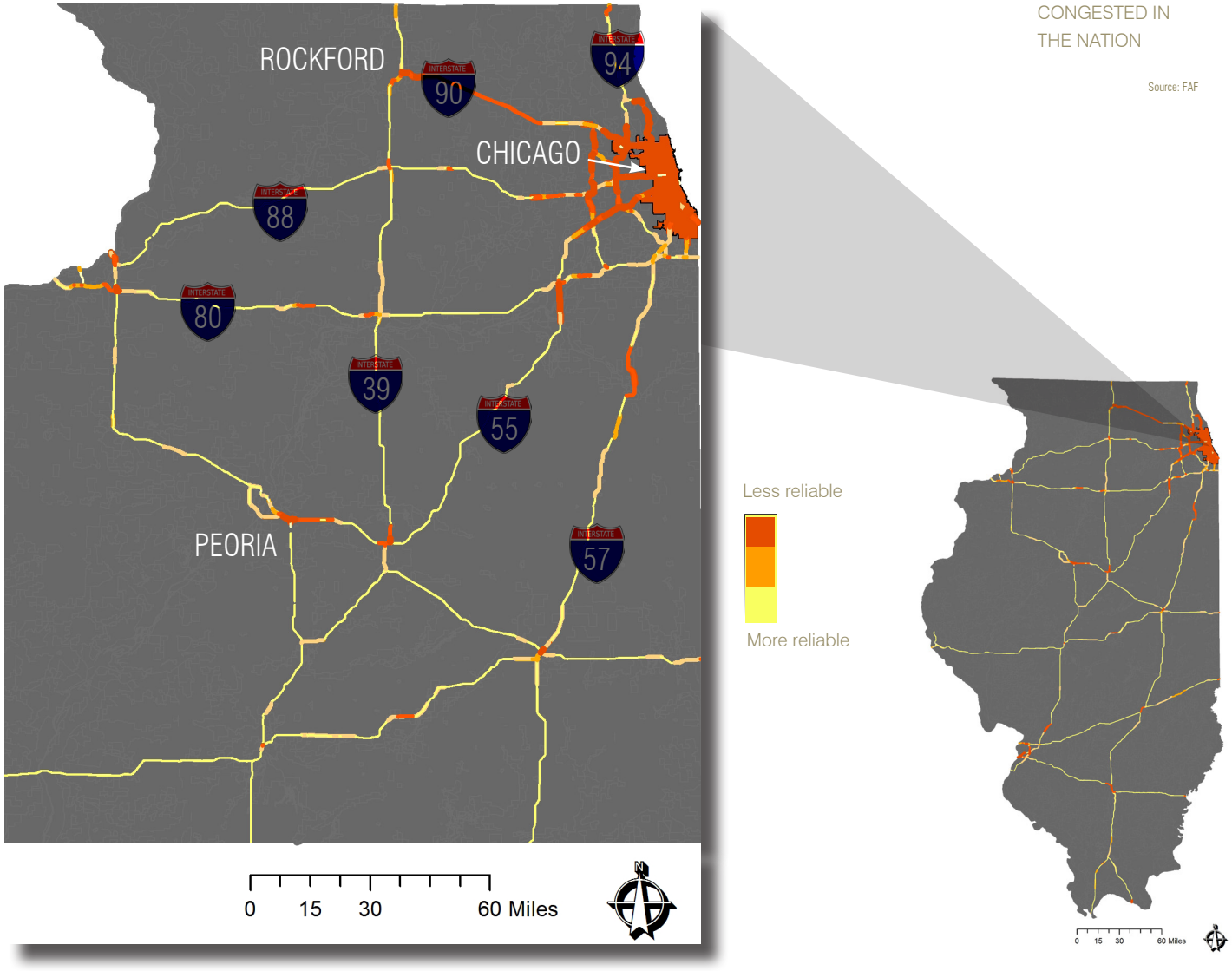
PROJECT FOCUS

CHICAGO CONGESTION

3RD

CHICAGO METRO REGION RANKS THIRD AS THE MOST CONGESTED IN THE NATION

Source: FAF

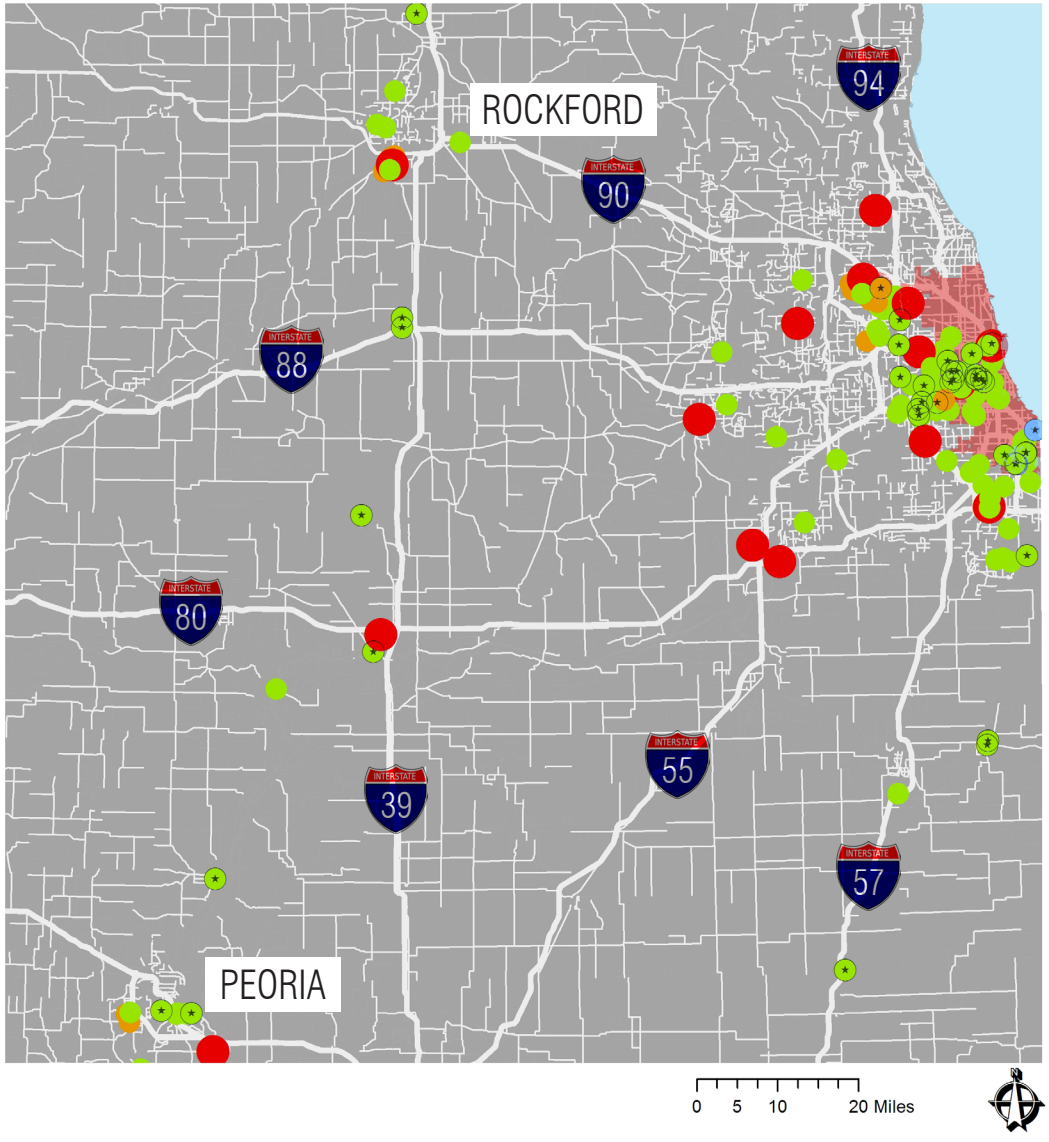


CHICAGO MODAL FACILITIES

67%

OF FREIGHT IS MOVED BY TRUCK IN THE CHICAGO REGION

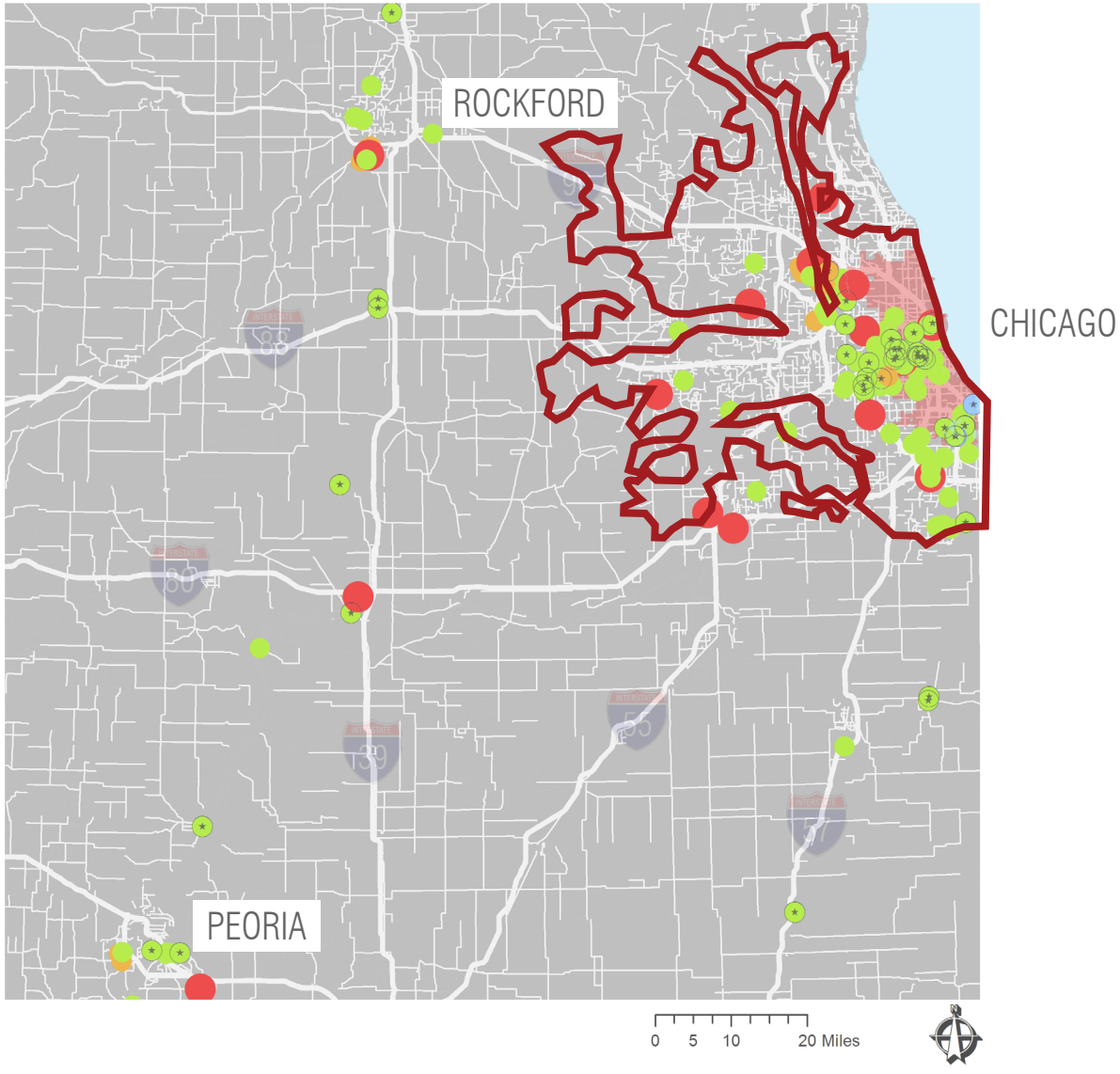
Source: CMAP



Modal facility

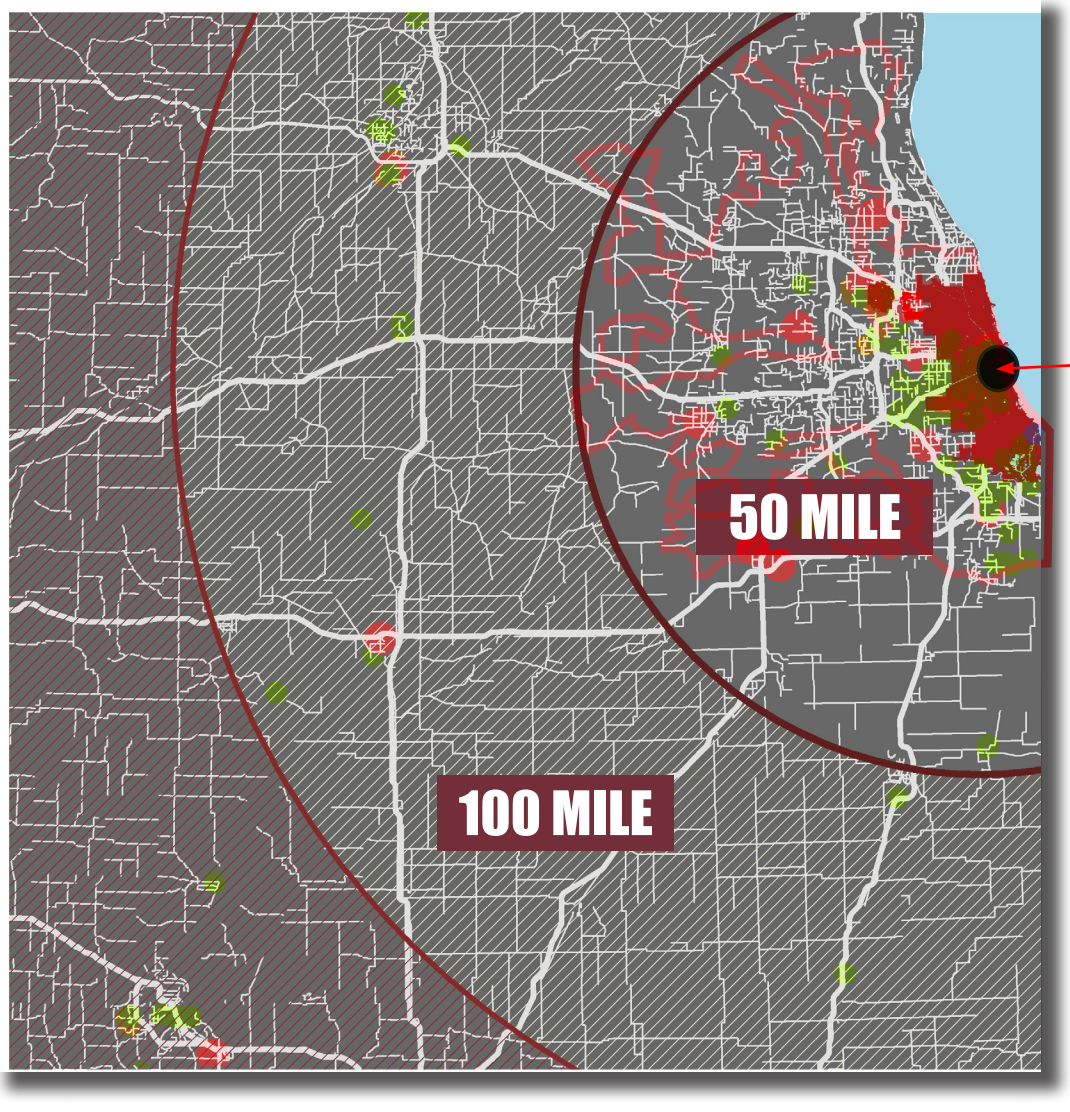
- Chicago boundary
- Truck
- Rail
- Air
- Port
- * Food distribution facility

CHICAGO SPRAWL



CHICAGO'S TERMINAL MARKET

Chicago International Produce Market is one of only a few terminal markets left in the country

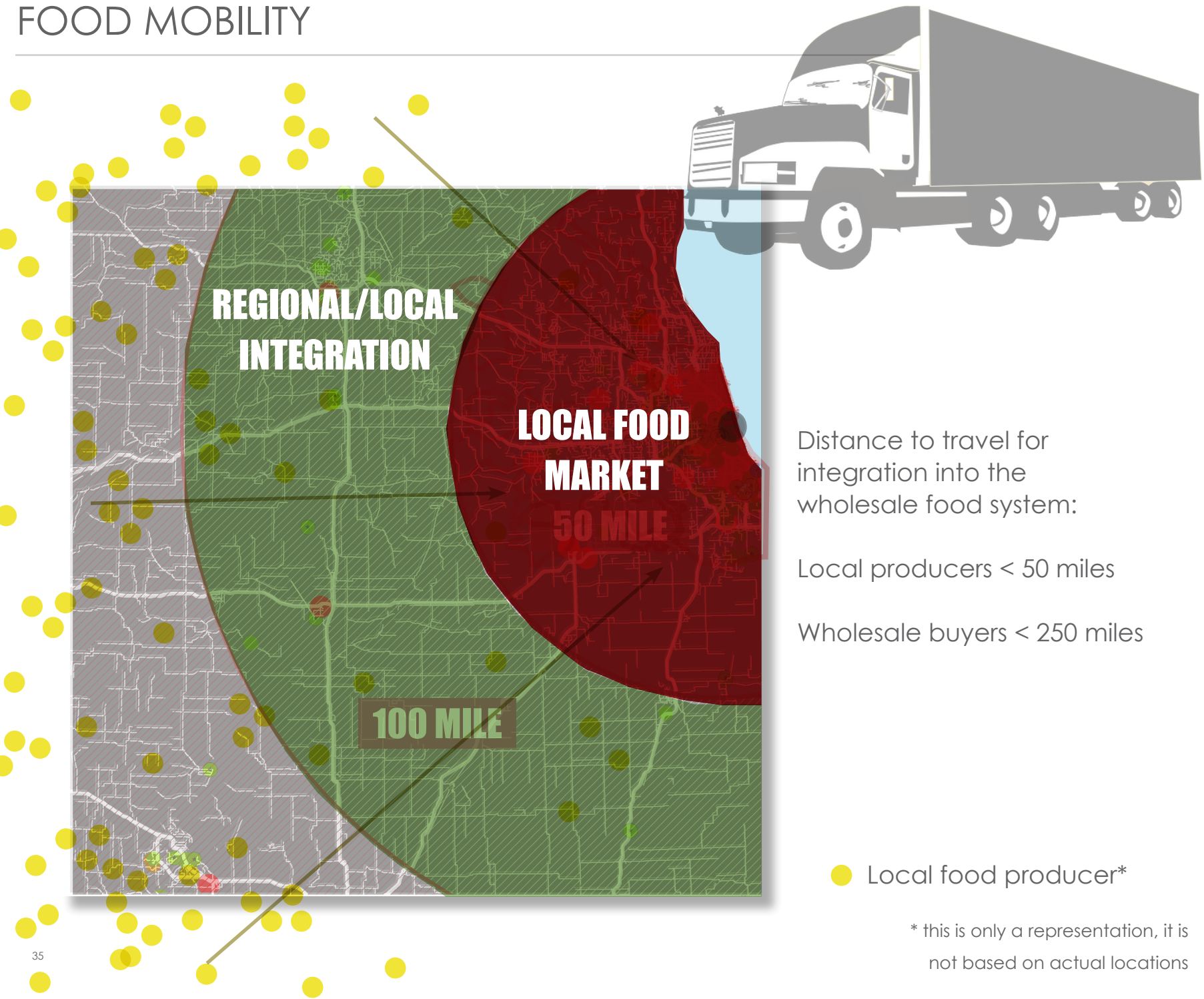


TERMINAL MARKET

Most produce that enters the city is transported to the terminal market

It is located deep into the city close to rail but difficult to reach by truck due to the costly delays on Chicago's interstates

FOOD MOBILITY



Distance to travel for integration into the wholesale food system:

Local producers < 50 miles

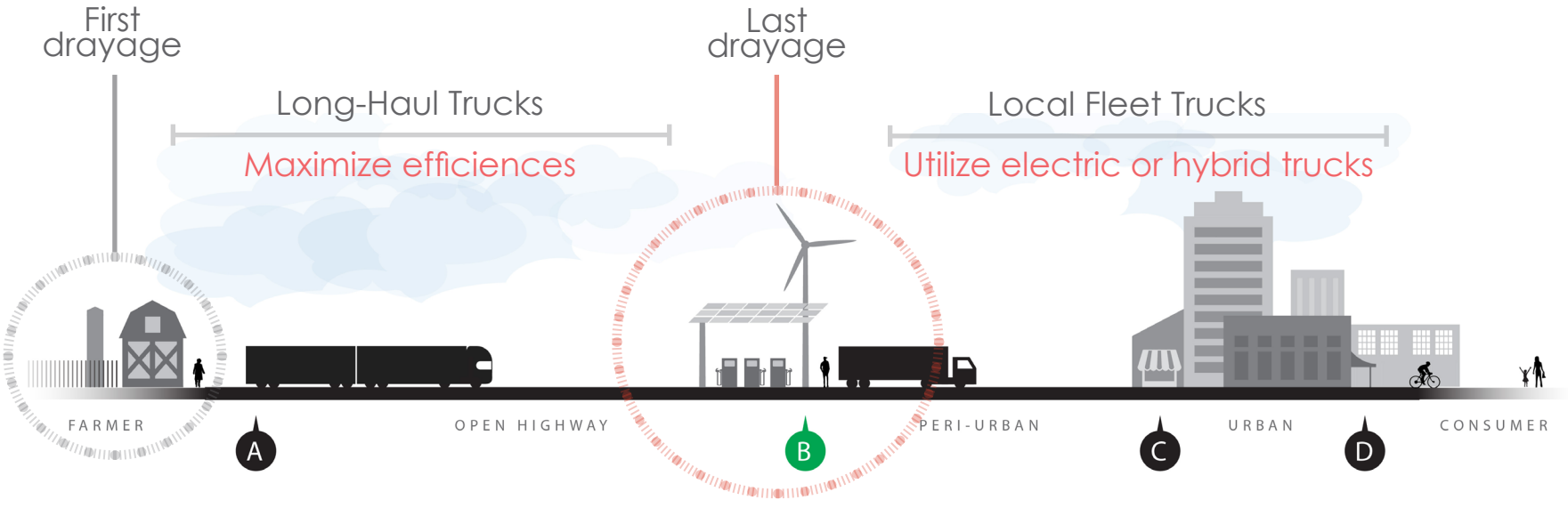
Wholesale buyers < 250 miles

● Local food producer*

* this is only a representation, it is not based on actual locations

PLANNING STRATEGY

INNOVATION IN MOVING FREIGHT



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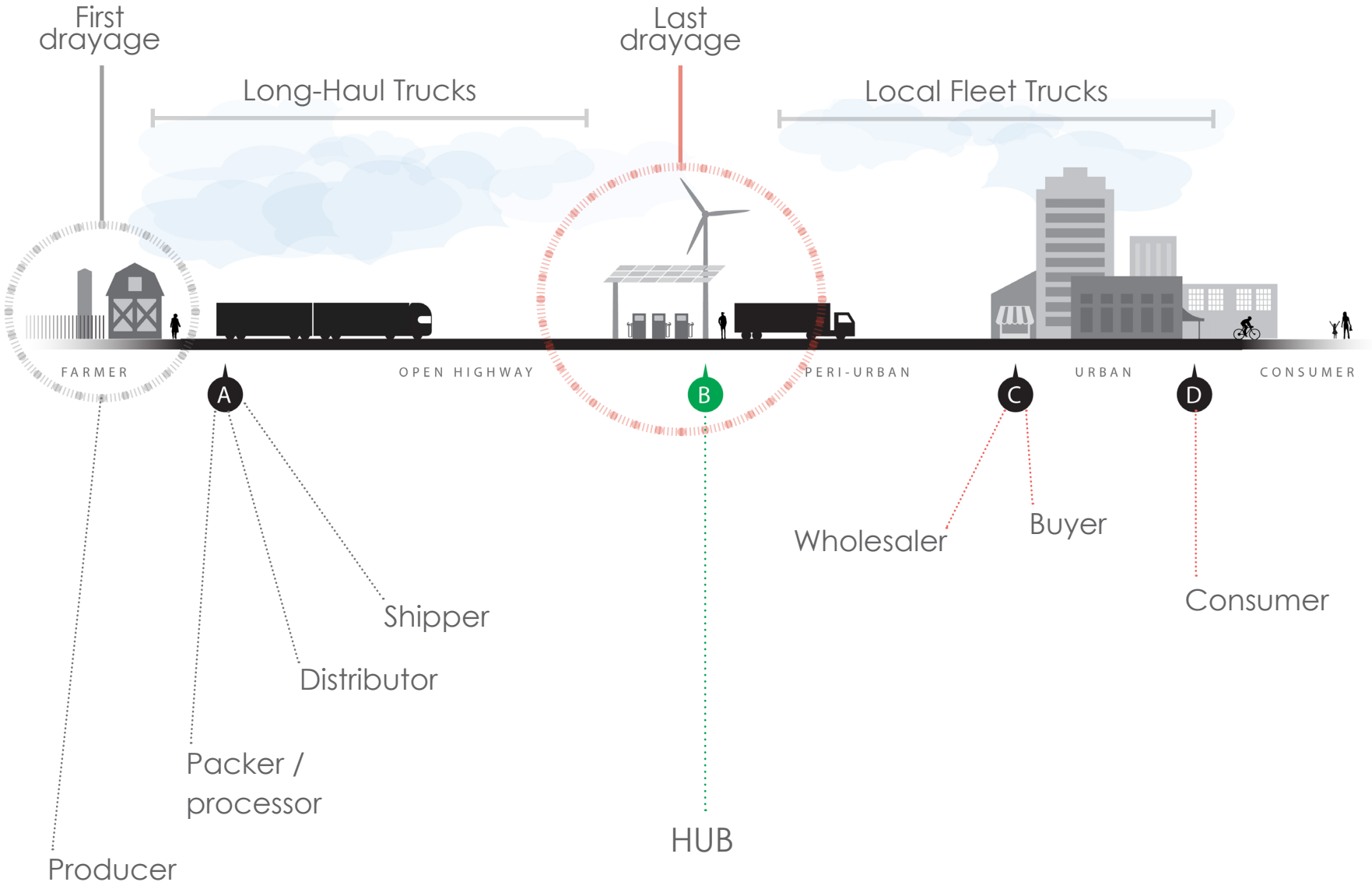

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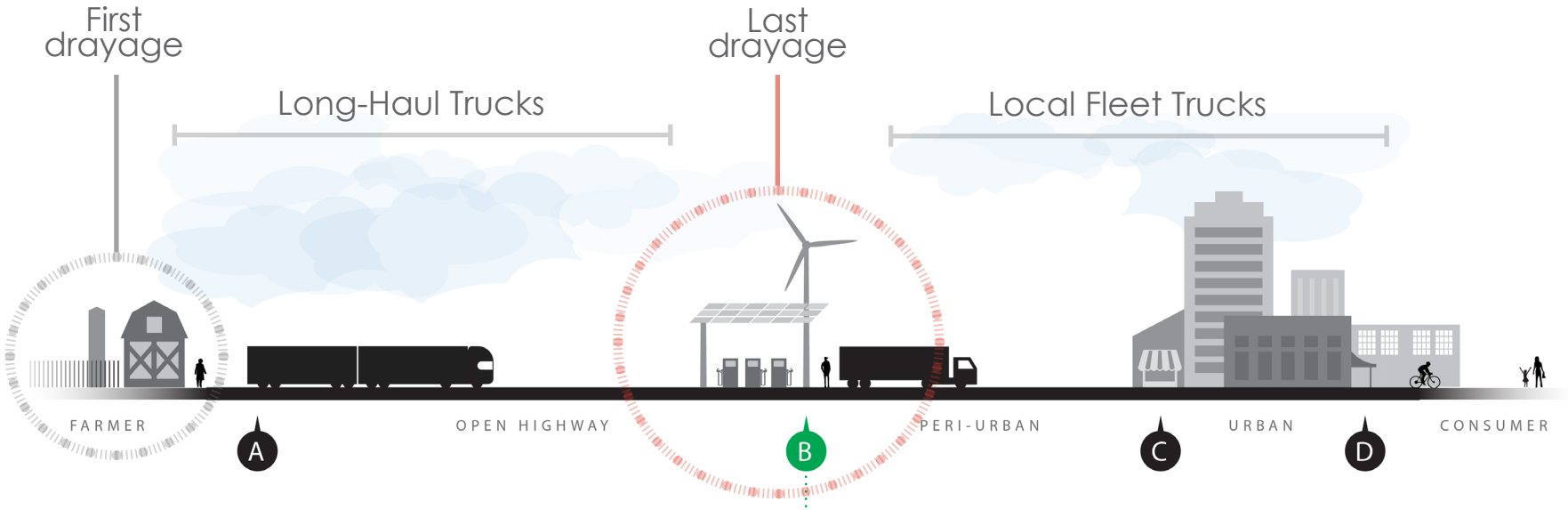

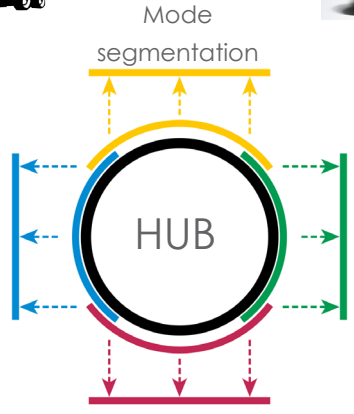

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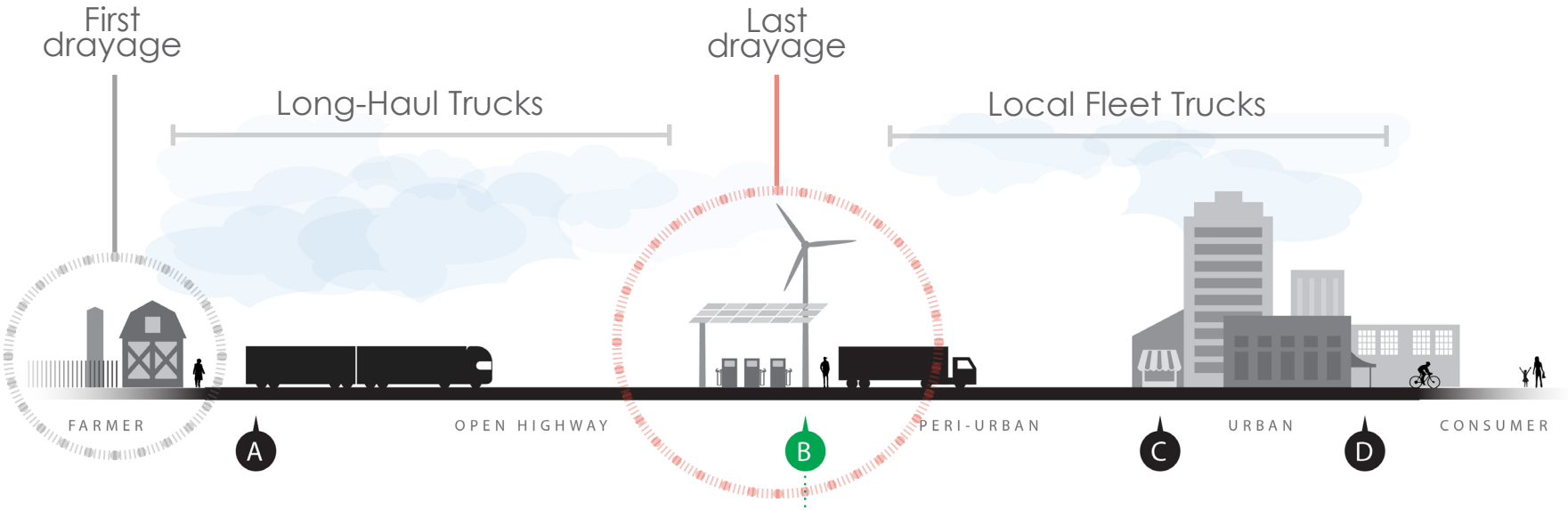

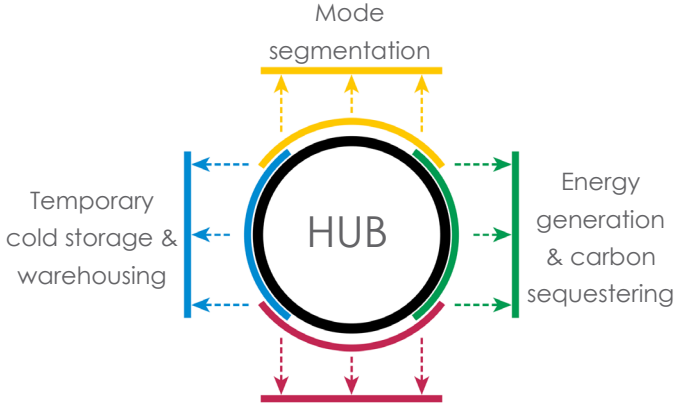

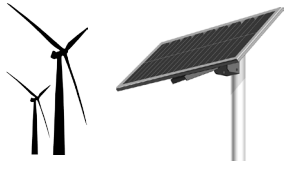
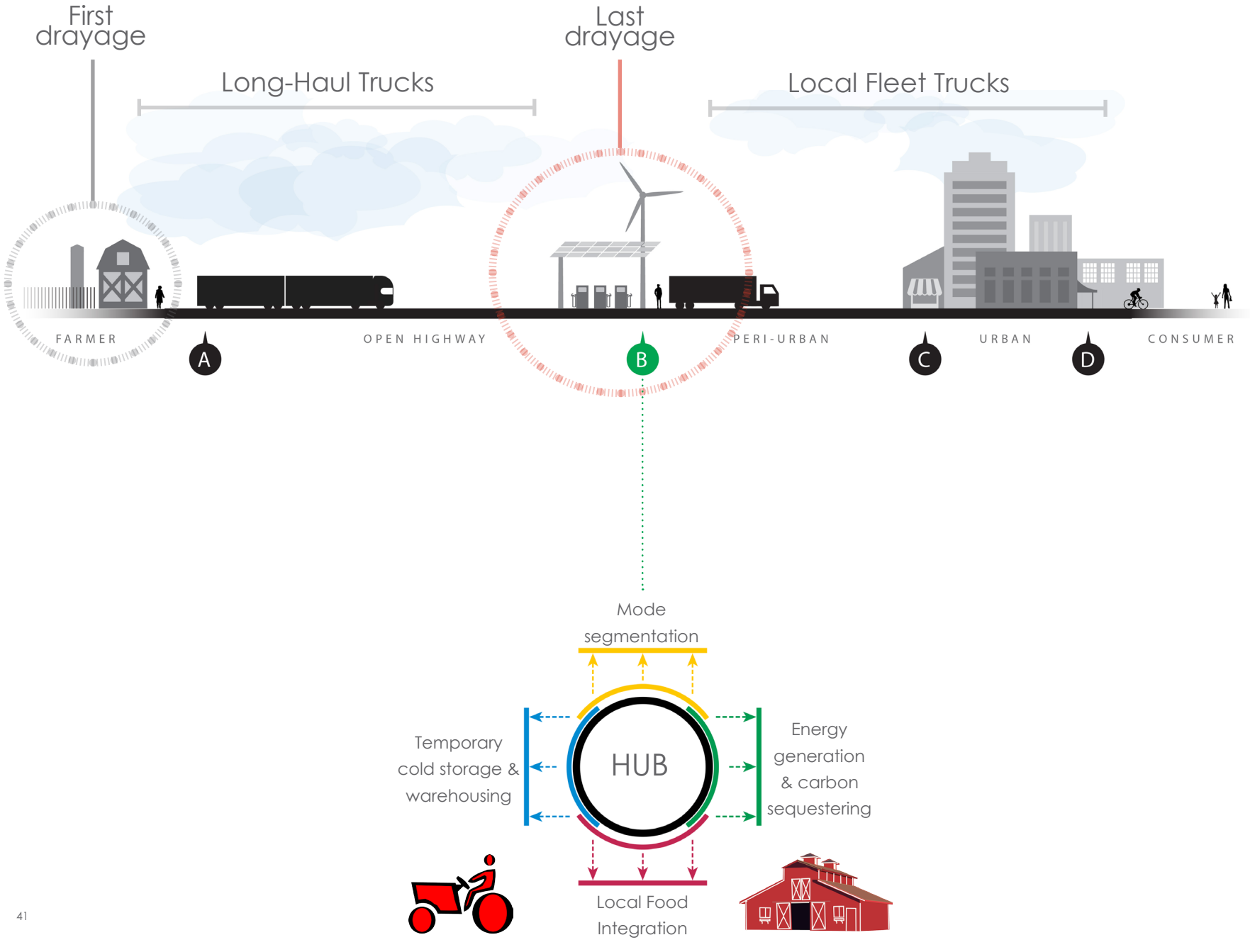
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