



Food Supply Chain Resilience

Presentation to MWCOG Freight Subcommittee

January 10, 2019

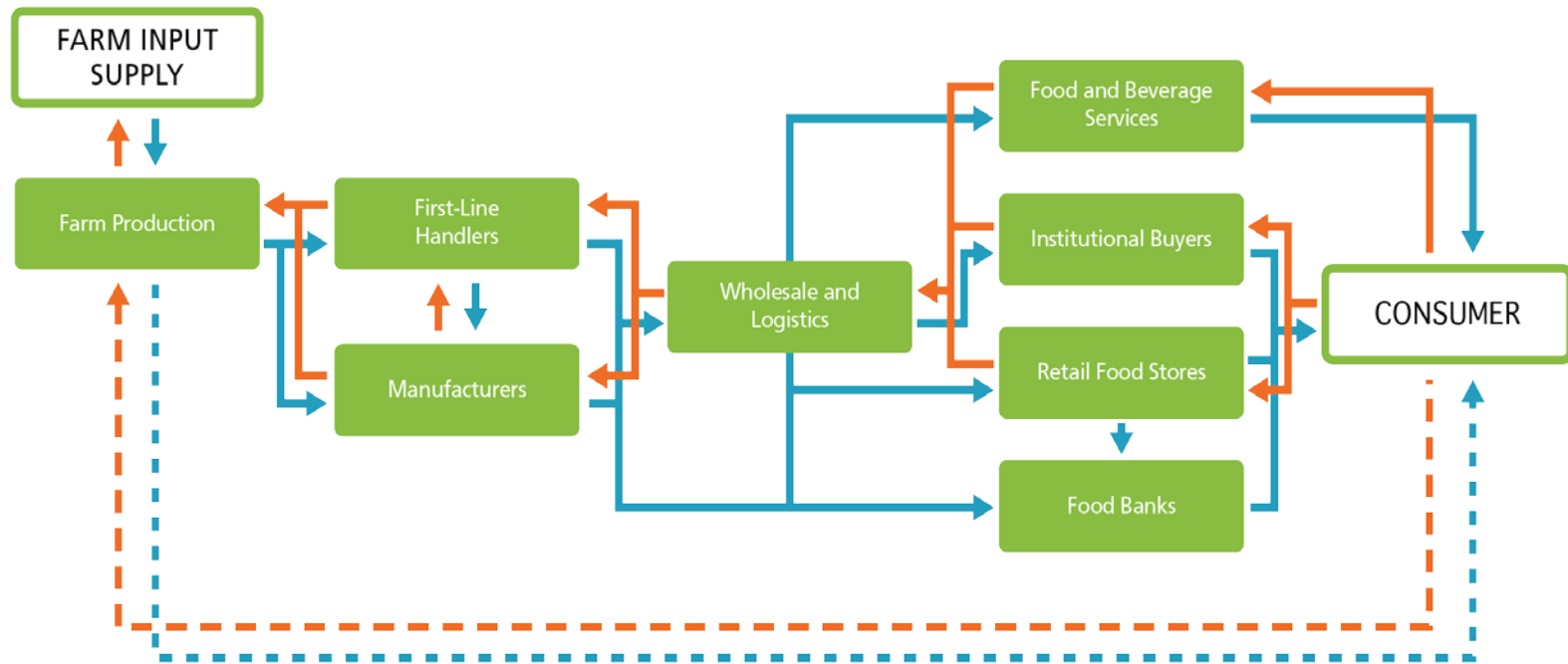


Why we did this study

- Characterize the food supply chain serving the District of Columbia
- Understand what would affect the resilience of the supply chain
- Use that information to improve operational planning and decision-making



Food supply chain



Scope and methodology

- Focused on conventional retail outlets (supermarkets and grocery stores)
- Described supply chain components:
 - **Supply nodes** - where food is staged for distribution
 - **Demand nodes** - where consumers buy their food
 - **Demand-supply links** - how food gets from supply node to demand node
- Identified potential impacts on the supply chain from a catastrophic event (hurricane), including infrastructure dependencies



Some findings







- There are 54 large grocery stores in the District, representing 17 companies, but the stores are not equitably distributed
- There are at least 12 major grocery distribution centers supplying District grocery stores; all are located outside the city, with concentration in eastern Maryland
- The District's largest wholesale grocery distributor also serves several other Mid-Atlantic and northeast U.S. urban areas
- Virtually all food arrives in the District by truck
- There are multiple freight corridors into the District
- While grocery stores are the primary source of food, many residents rely on smaller retail outlets and non-retail options

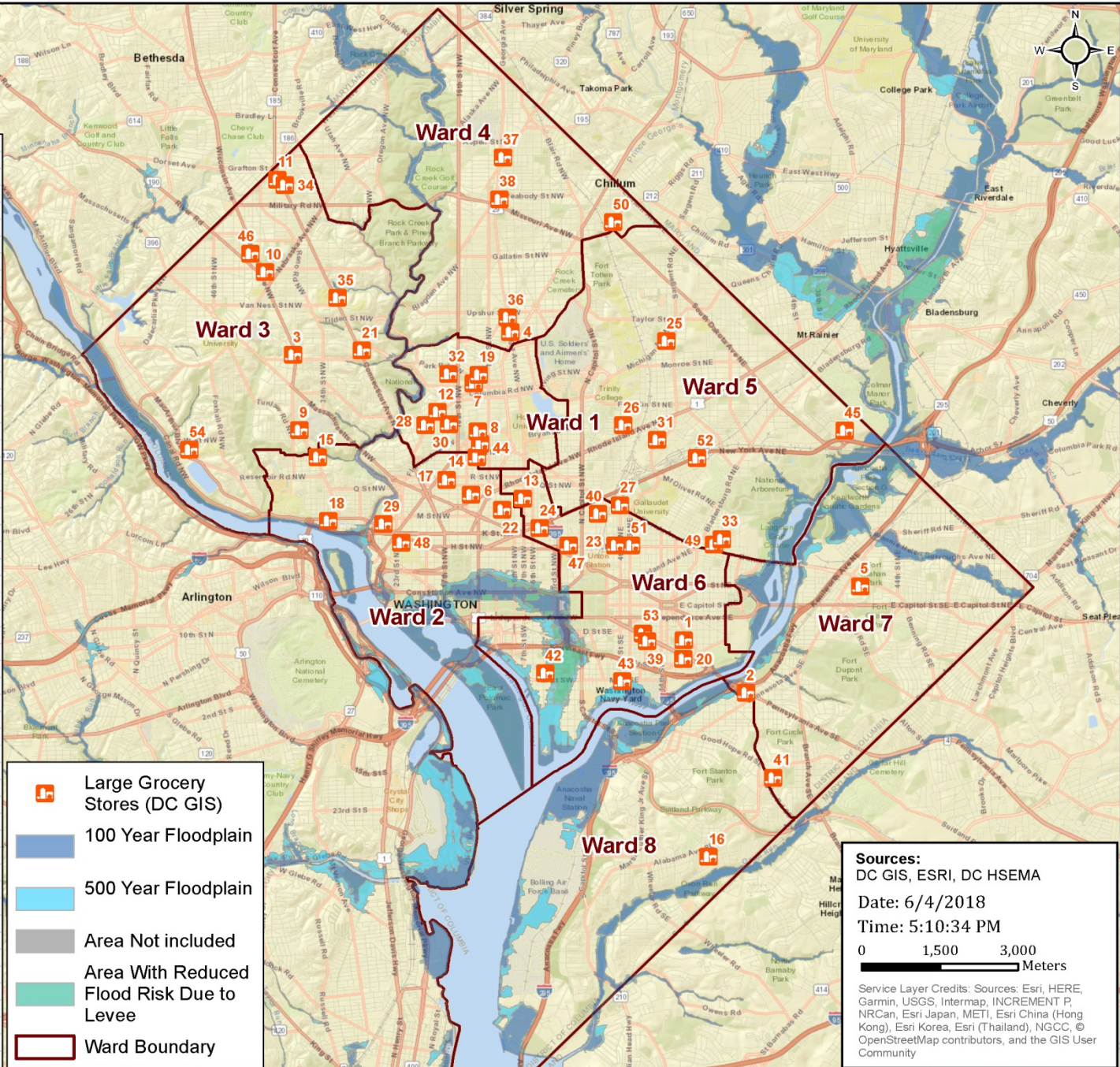


Large Grocery Stores and the District of Columbia Floodplains



Map ID	STORENAME	ADDRESS
1	Safeway	415 14th ST SE
2	Yes! Organic	2323 Pennsylvania Ave S.E.
3	Giant	3336 Wisconsin Ave NW
4	Safeway	3830 Georgia Ave NW
5	Safeway	322 40th ST NE
6	Whole Foods	1440 P ST NW
7	Target	3100 14th Street Northwest
8	Streets Market	2400 14TH ST NW
9	Whole Foods	2323 Wisconsin Ave NW
10	Whole Foods	4530 40th ST NW
11	Magruder's	5626 Connecticut Ave NW
12	Safeway	1747 Columbia Rd NW
13	Giant	1400 7th Street NW
14	Trader Joe's	1914 14th Street NW
15	Safeway	1855 Wisconsin Ave NW
16	Giant	1535 Alabama Ave SE
17	Safeway	1701 Corcoran St NW
18	Dean & DeLuca	3276 M Street NW
19	Giant	1345 Park Road NW
20	Harris Teeter	1350 Potomac Ave SE
21	Yes! Organic	3425 Connecticut Avenue NW
22	Capitol Super Market	1231 11th st NW
23	Giant	300 H Street NE
24	Safeway	490 L St NW
25	Yes! Organic	3809 12th Street NE
26	Save-A-Lot	514 Rhode Island Ave NE
27	Trader Joe's	1240 4th St NE
28	Yes! Organic	1825 Columbia Road NW
29	Trader Joe's	1101 25th St NW
30	Harris Teeter	1631 Kalorama Road
31	Giant	1050 Brentwood Rd NE
32	BestWorld Super Market	3178 Mount Pleasant St NW
33	Aldi	901 17th St NE
34	Safeway	5545 Connecticut Ave NW
35	Giant	4303 Connecticut Ave NW
36	Yes! Organic	4100 Georgia Avenue NW
37	Safeway	6500 Piney Branch Rd NW
38	Walmart Supercenter	5929 Georgia Ave NW
39	Yes! Organic	410 8th Street SE
40	Harris Teeter	1201 1st ST NE
41	Safeway	2845 Alabama Ave SE
42	Safeway	1100 4th St SW
43	Harris Teeter	401 M street SE
44	Yes! Organic	2123 14th Street NW
45	Costco Wholesale	2441 Market St NE
46	Safeway	4203 Davenport ST NW
47	Walmart Supercenter	99 H st NW
48	Whole Foods	2201 Eye Street NW
49	Safeway	1601 Maryland Ave NE
50	Walmart Supercenter	310 Riggs Road NE
51	Whole Foods	600 H St NE
52	Mom's Organic Market	1501 NEW YORK AVE NE
53	Trader Joe's	750 Pennsylvania Ave SE
54	Safeway	4865 MacArthur Blvd NW

-  Large Grocery Stores (DC GIS)
-  100 Year Floodplain
-  500 Year Floodplain
-  Area Not included
-  Area With Reduced Flood Risk Due to Levee
-  Ward Boundary



Sources:
DC GIS, ESRI, DC HSEMA


Date: 6/4/2018

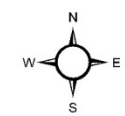
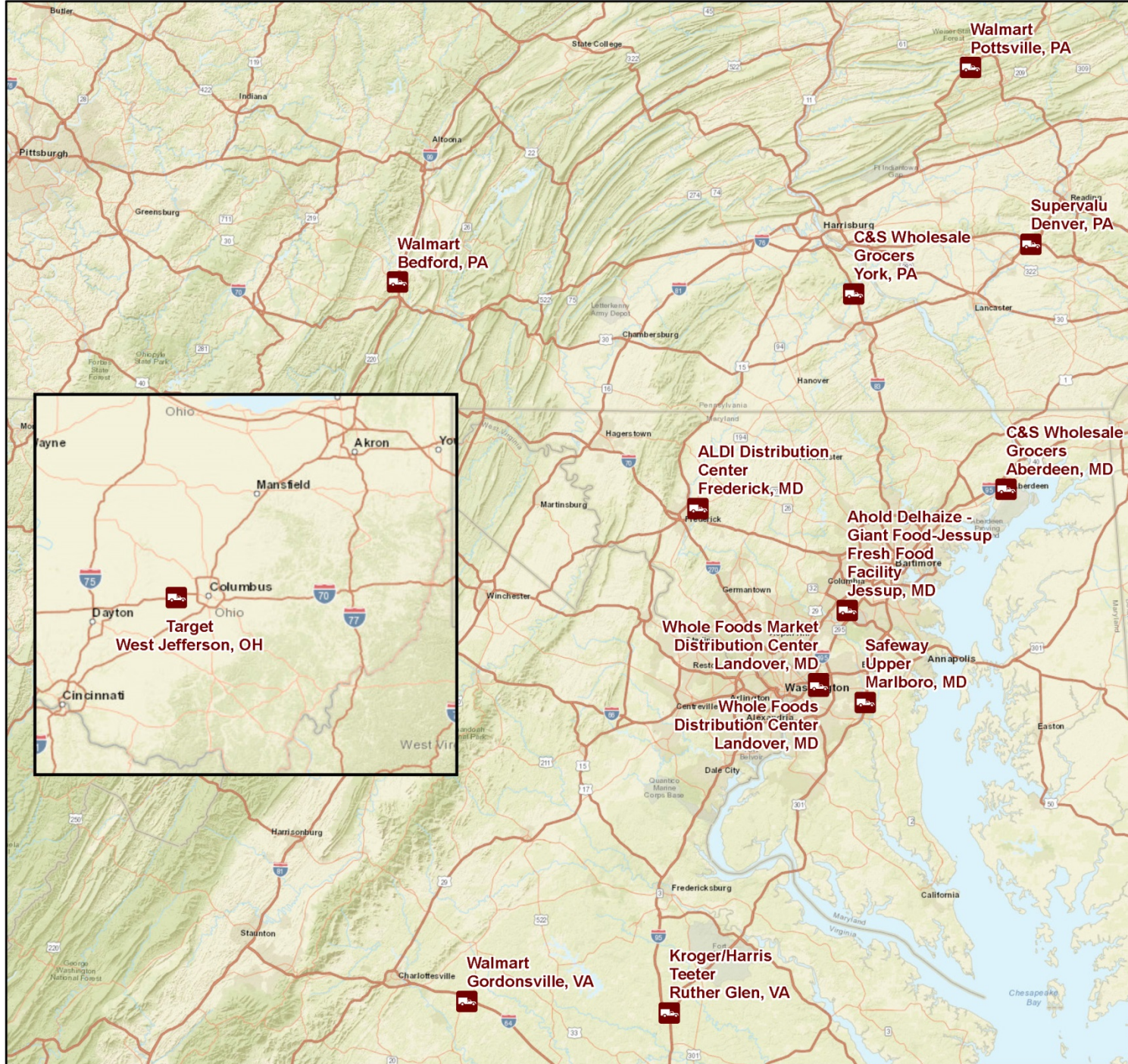
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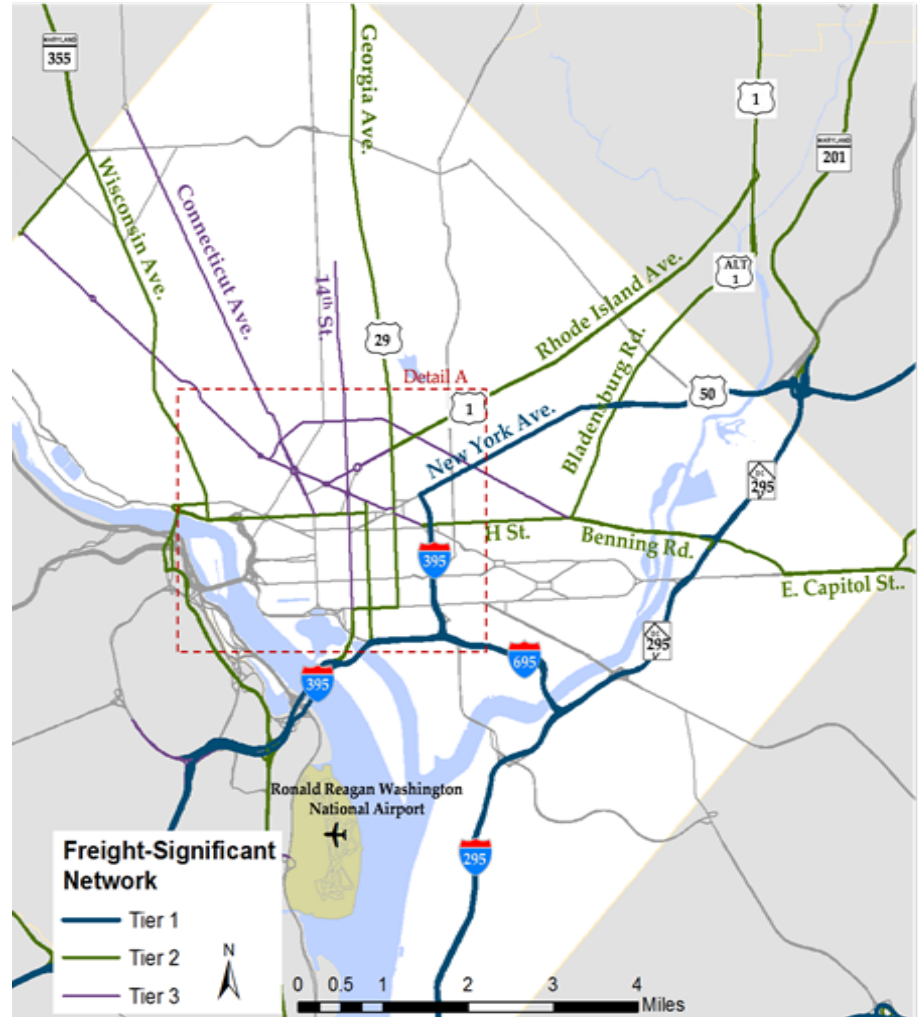
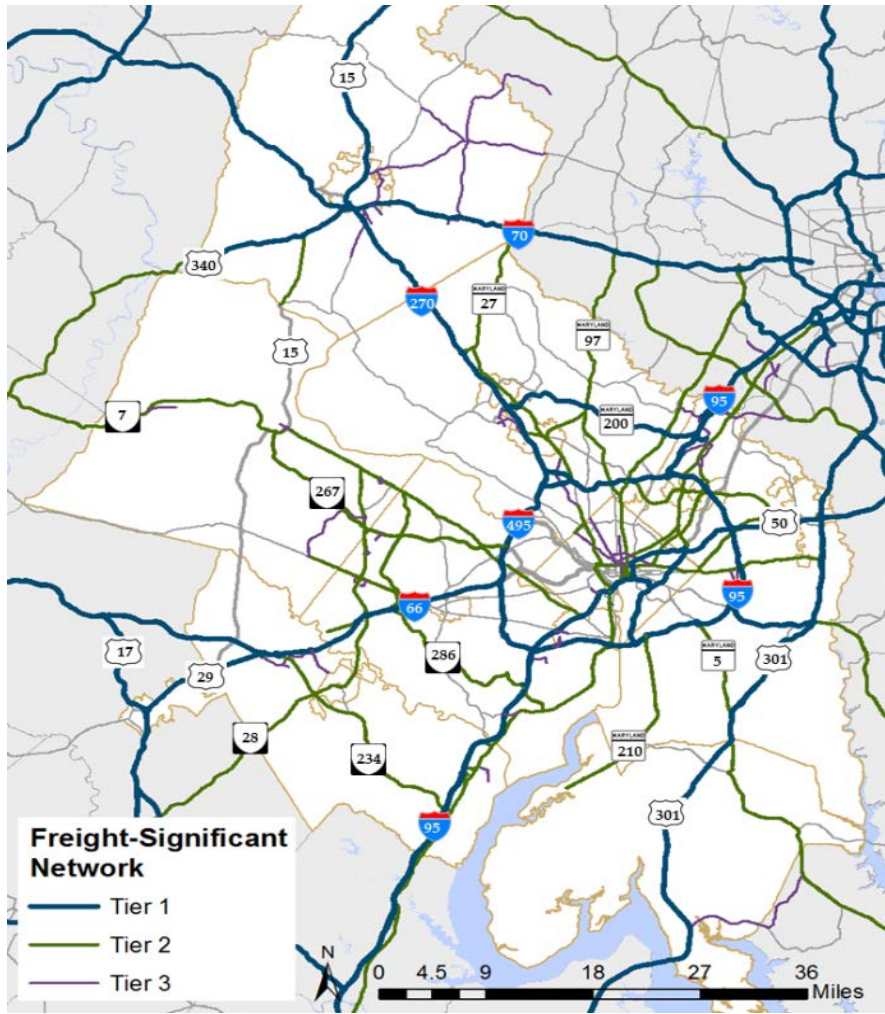
District of Columbia Food Distribution Locations

 DC - Food Distribution Locations



Sources:
ESRI, DC HSEMA
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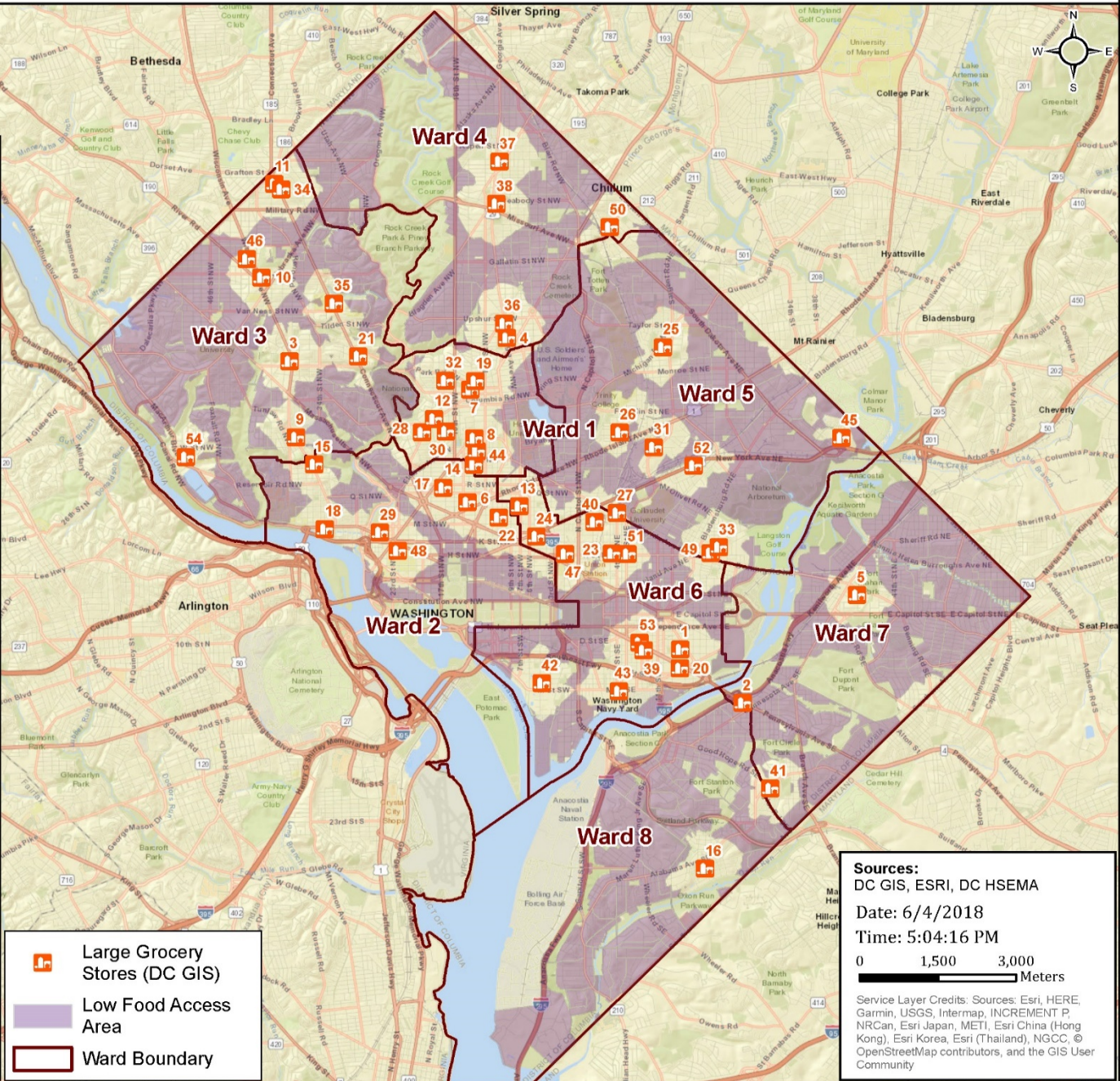
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Low Food Access Areas in the District of Columbia



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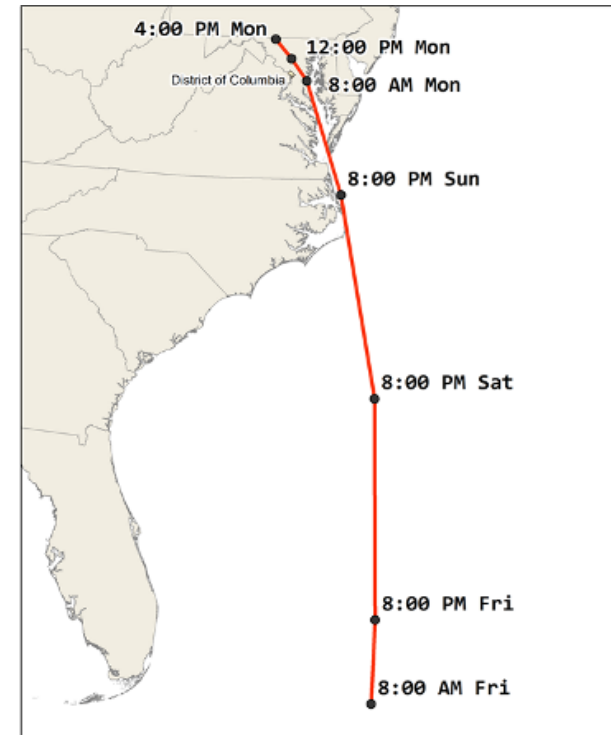
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Disaster scenario

- A Category 3 hurricane makes landfall south of Ocean City, MD and moves inland toward the District, with top wind speeds of 115-125 mph. By the time the hurricane reaches the District, winds hover between 96-101mph, reducing the hurricane to a Category 2.
- Impacts: wide-scale power outages; blocked roads and highways due to flooding and debris; displaced residents and businesses; related infrastructure damage.



Some conclusions about resilience

- Most retail outlets and distribution centers are outside high-hazard areas, but could be isolated by transportation disruptions
- Many areas in the District considered “food insecure” may be more vulnerable to coastal storms
- Greatest impacts to the food supply chain: long-term power outage, limited fuel availability
- Geography and urban concentration in Mid-Atlantic and Northeast corridor would likely lessen the impact of a localized disaster in the District
- The District’s grocery supply chain appears to be pretty resilient - but a regional-scale disaster could change that dynamic



Some freight-related questions

- Are our assumptions about the availability of multiple freight corridors correct?
- Have any NCR freight corridors been prioritized for restoration following a disruption?
- What mechanisms are in place to ensure coordination among NCR jurisdictions for maintenance and restoration of freight corridors?
- To what extent is last-mile delivery affected by traffic congestion in the District?
- How much of a concern is fuel availability during a disaster?



How we will use the results

- Identify and implement changes to District operational plans and procedures
- Identify and pursue actions to strengthen private sector engagement
- Develop regional collaboration arrangements
- Support related policy and planning initiatives



Next steps

- Continue study of the grocery supply chain:
 - Engage with supply chain stakeholders to validate information and assess their emergency preparedness posture
 - Identify supply nodes, demand nodes, and supply demand links for other sources of food for District residents
 - Assess risk from other hazard scenarios
 - Develop recommendations for improving resilience
- Use the methodology to analyze supply chains for fuel and healthcare supply chains serving the District
- Convene a Supply Chain Summit in November 2019



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