

Integrated Response to Flood Resilience Planning based on Ecosystem Services and an Eco-decisional Network.

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Can't see the Forest for the Trees...

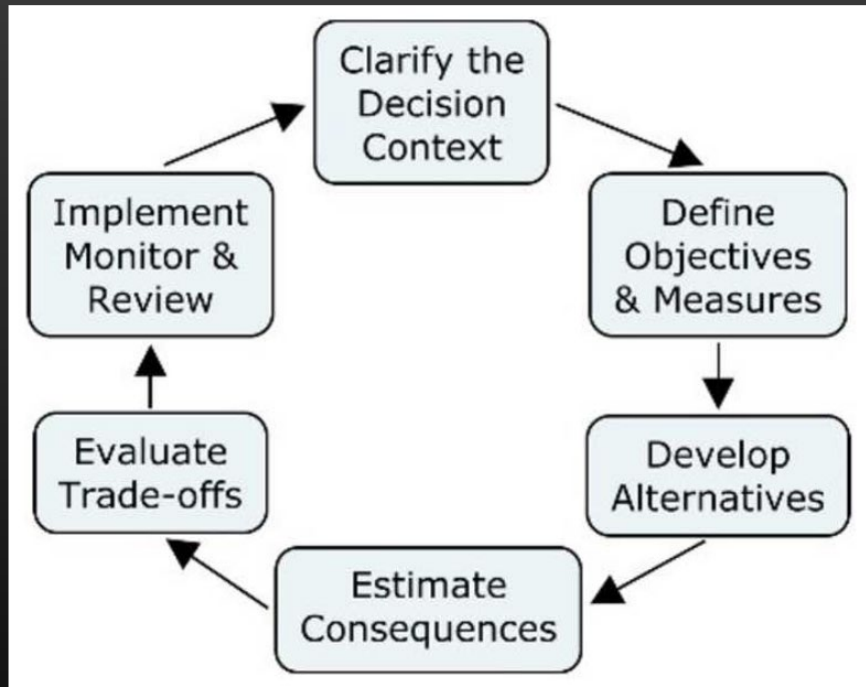


Community flood resilience

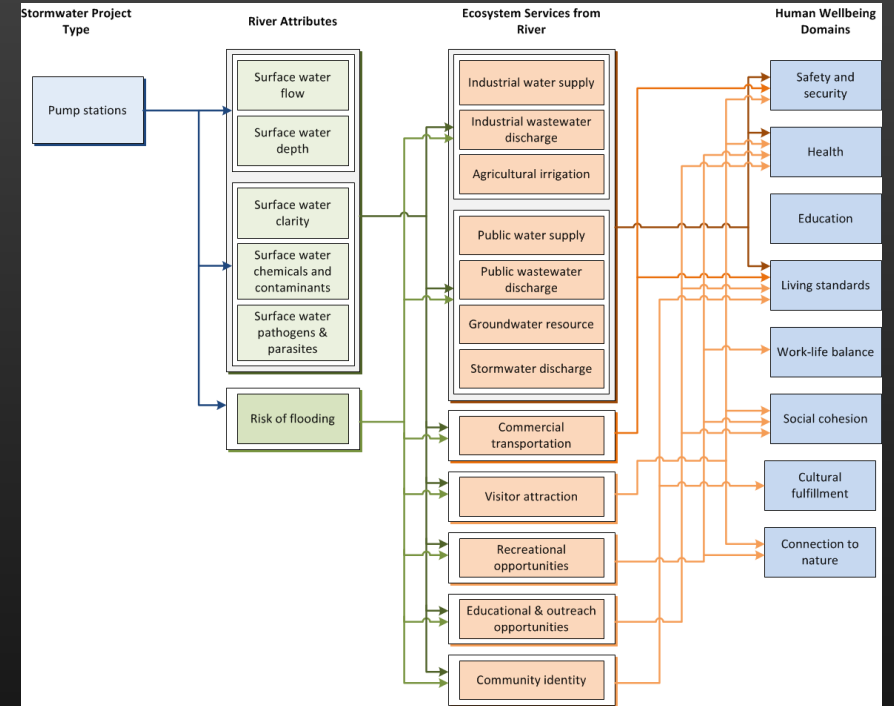
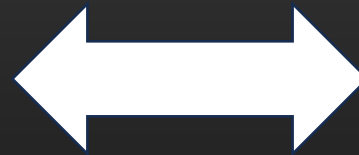
Flood protection



Integrated tools needed

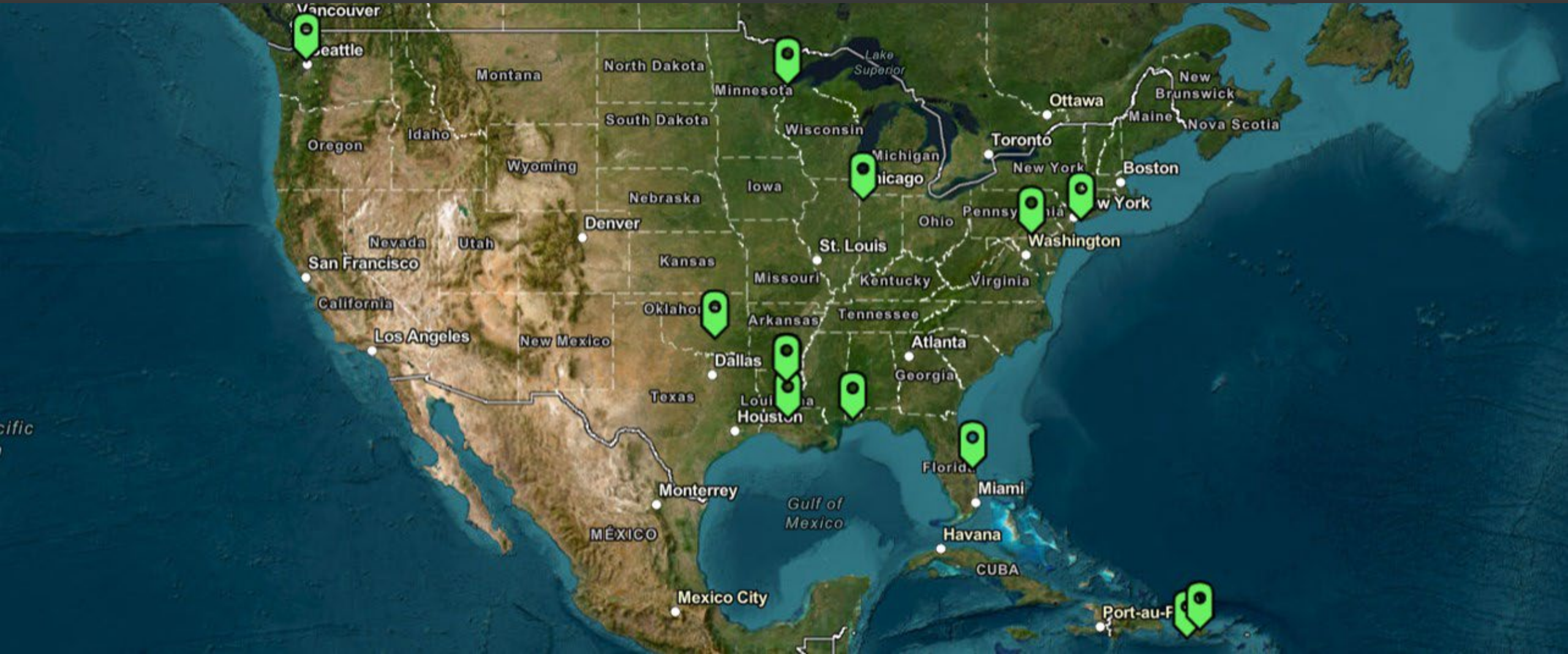


Stakeholder engagement



Structured analysis of options

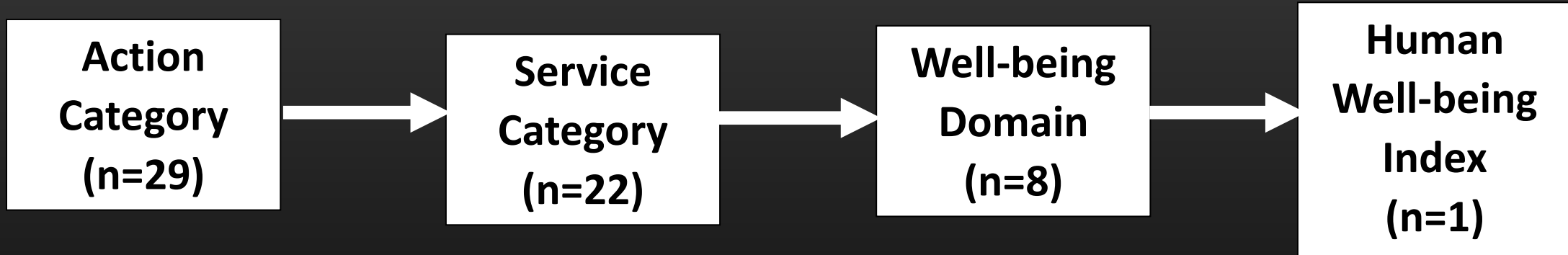
National Community Case Study



Eco-decisional network for community resilience

Fulford and Paulukonis 2024

Frontiers in Ecology and Evolution



- Access Natural Resources
- Flood protection
- Preserve sense of place
- Econ development

- Employment
- Greenspace
- Consumption
- Housing

- Health
- Living standards
- Connection to Nature

Eco-decisional Network

Nodes - 60

Links - 832

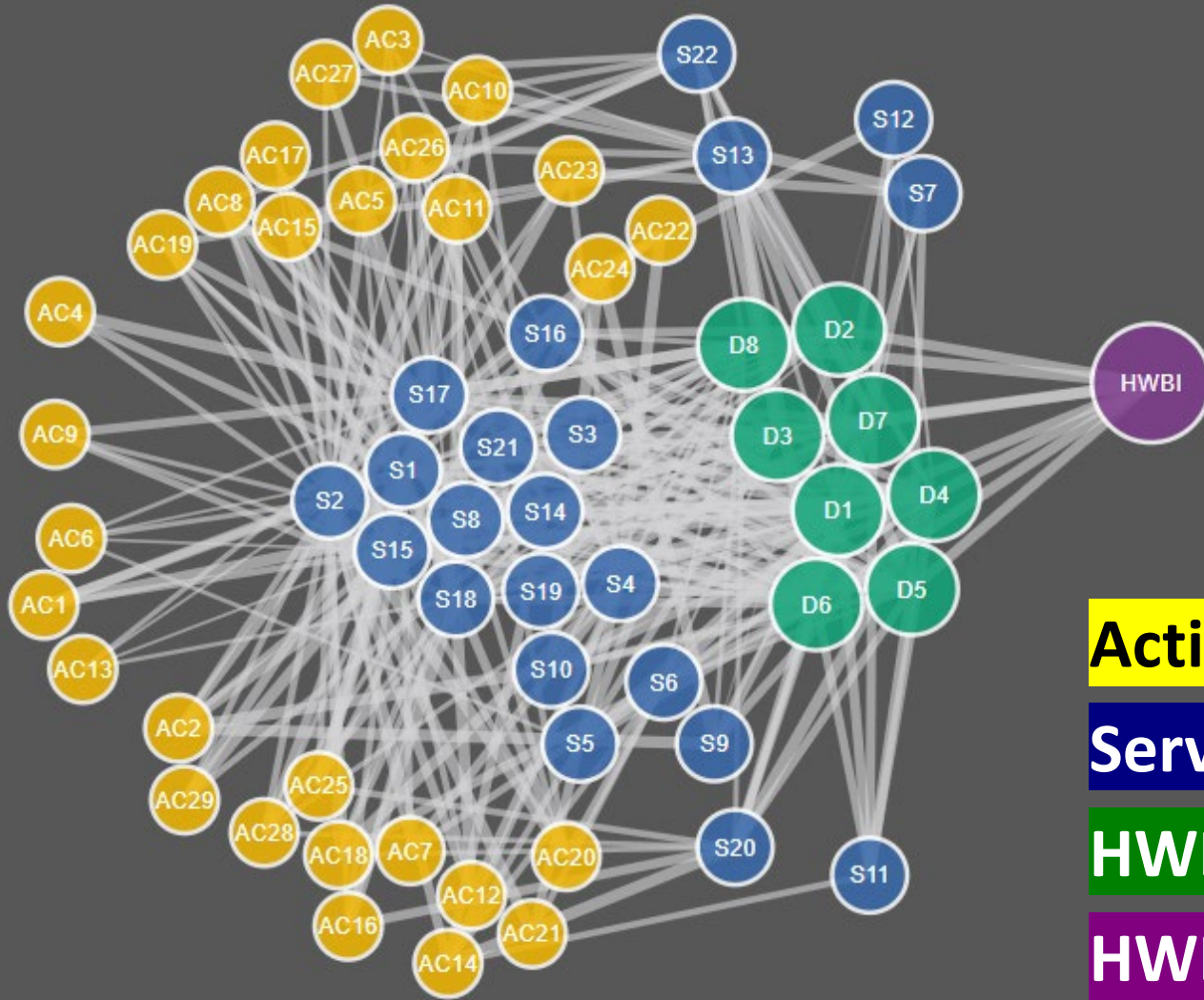
Link weights

Network indices

Connectivity

Ascendancy

Realized Roles



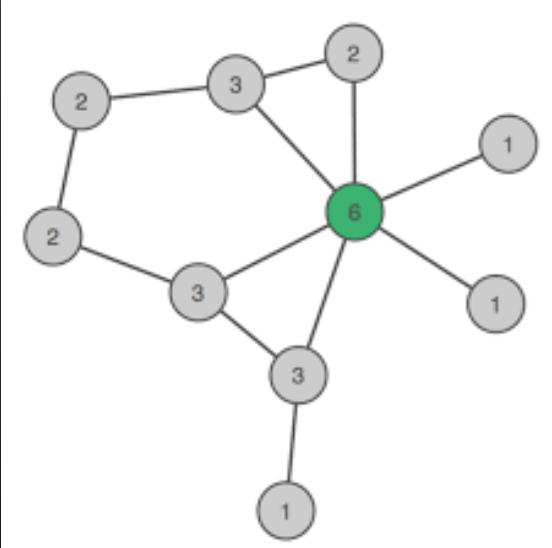
Action

Service

HWB Domain

HWBI

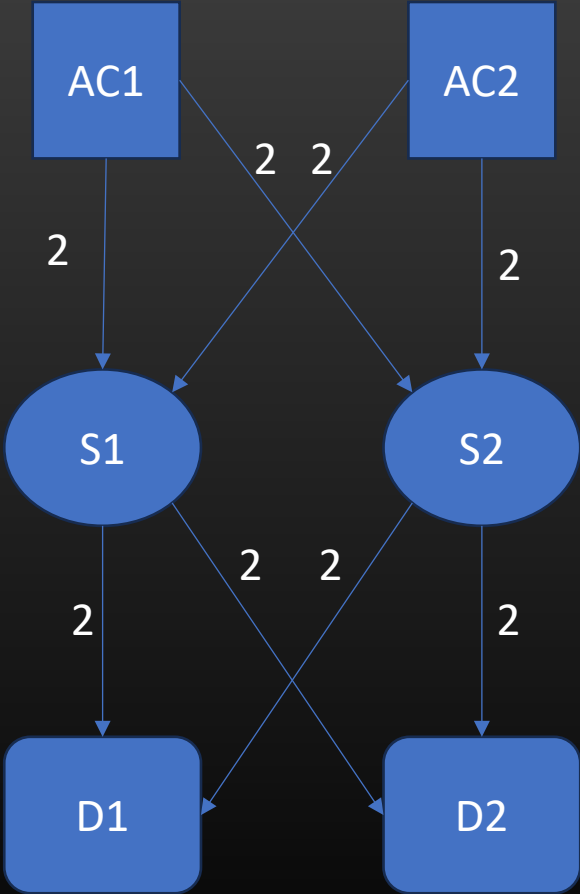
Network theory as an analytical tool

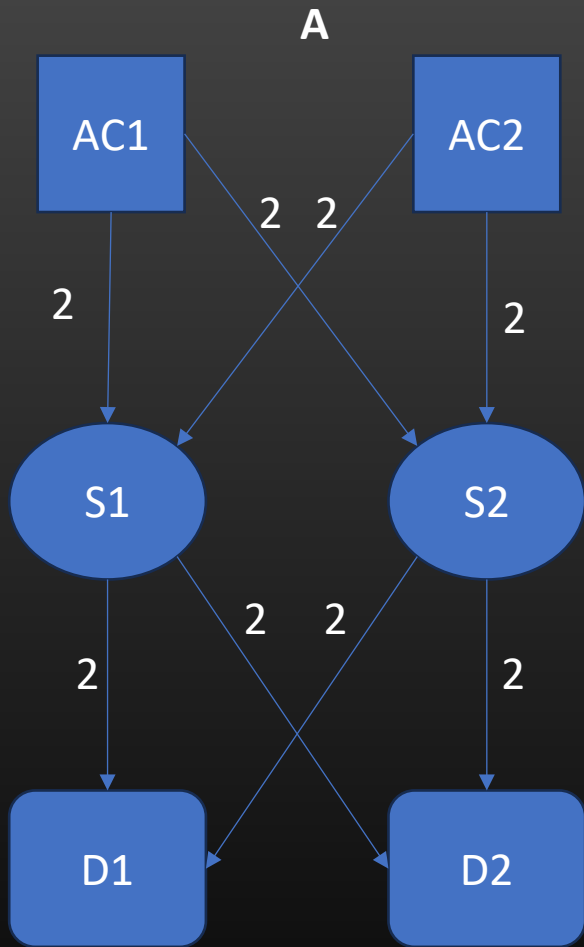


Traditional Decisional Network

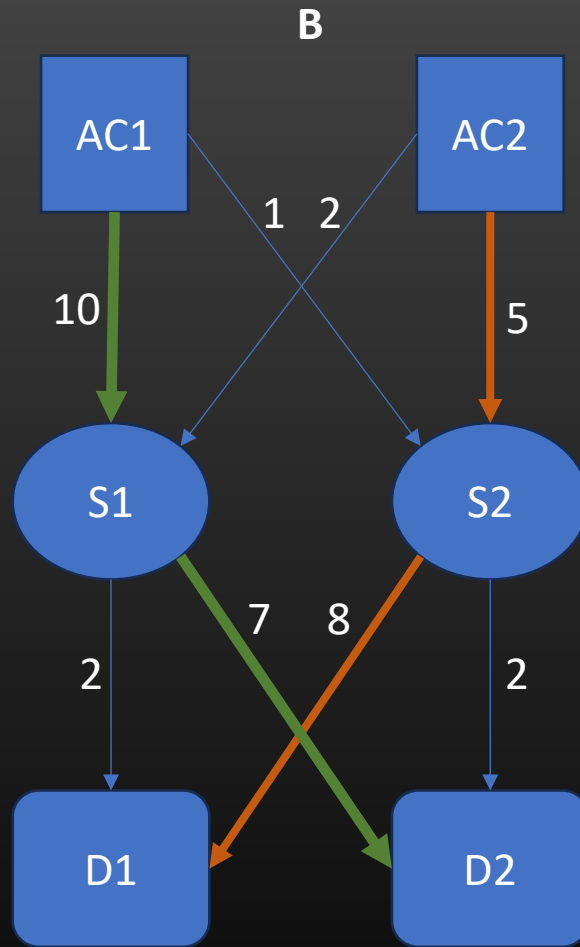
Weighted Flow Network

- Directionality
- Influence
- Pathways
- Realized Roles

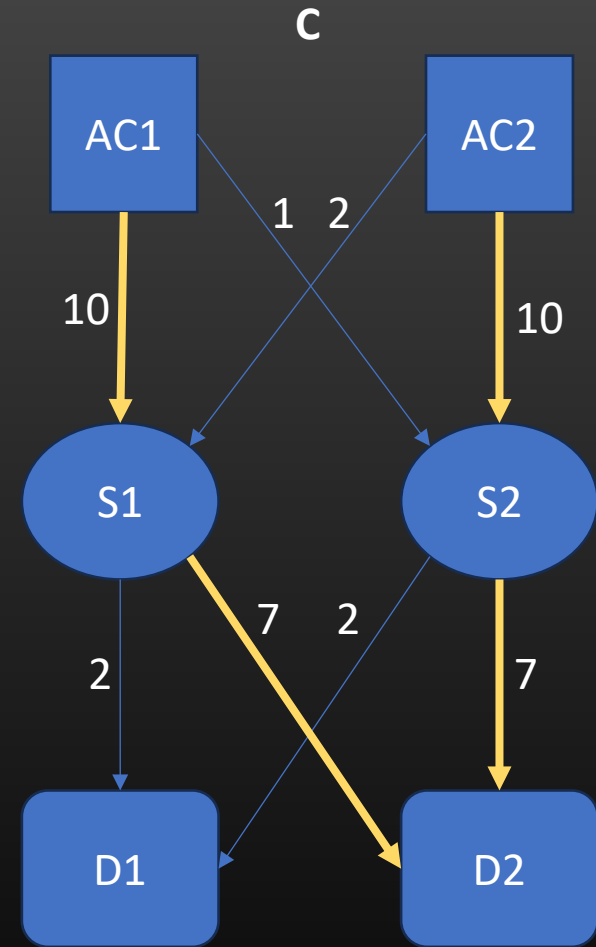




N=8 Roles



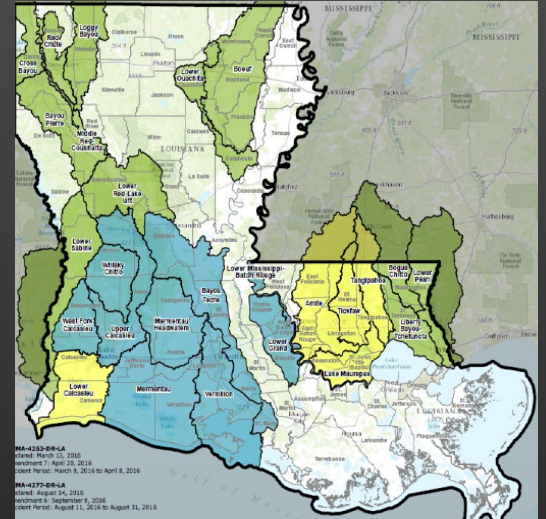
N=2 Roles



N=1 Roles

Louisiana flood resilience roadmap

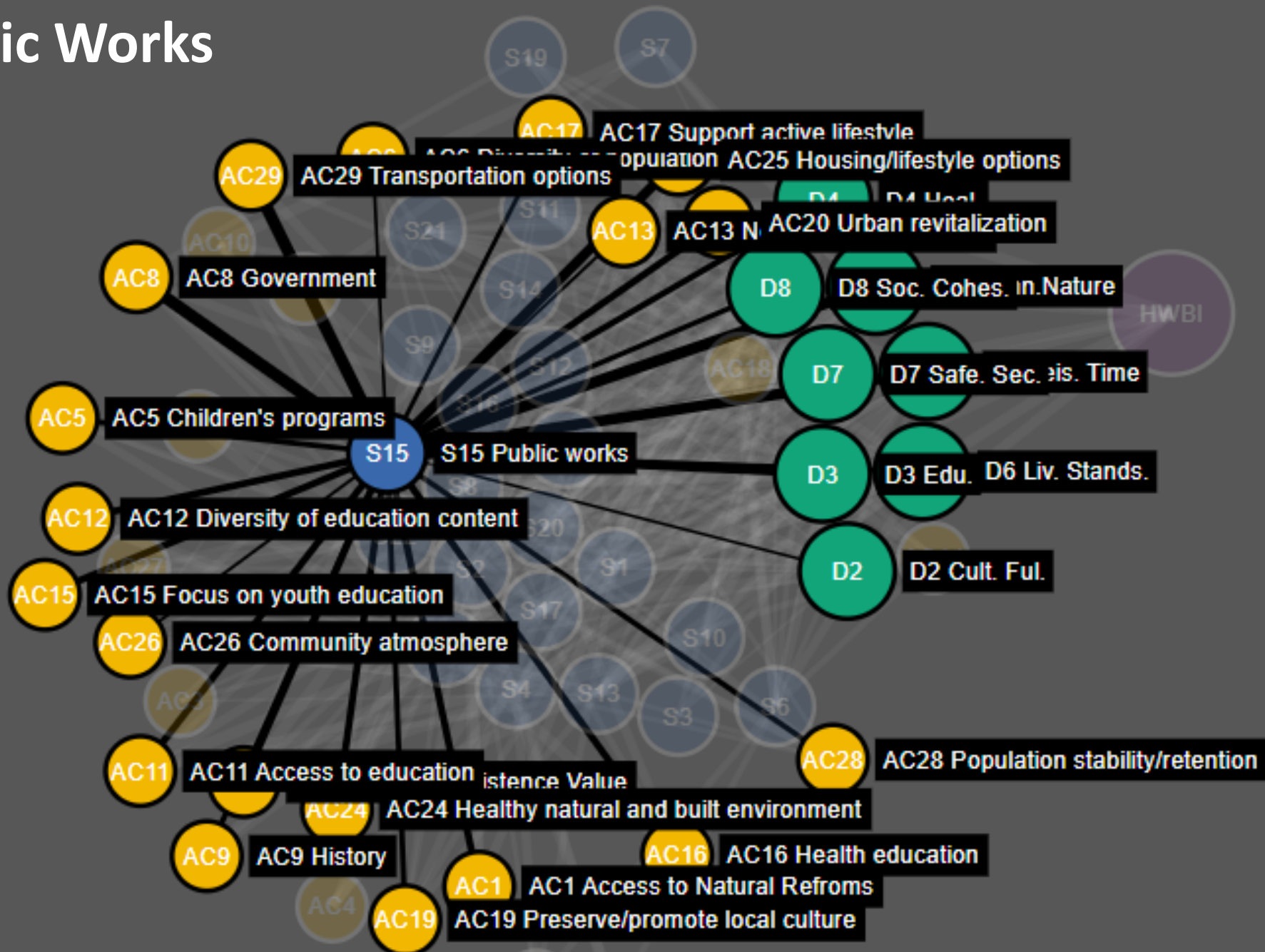
- Multiple repetitive floods lead to a call for an integrated response
- Community engagement combined with national network tool



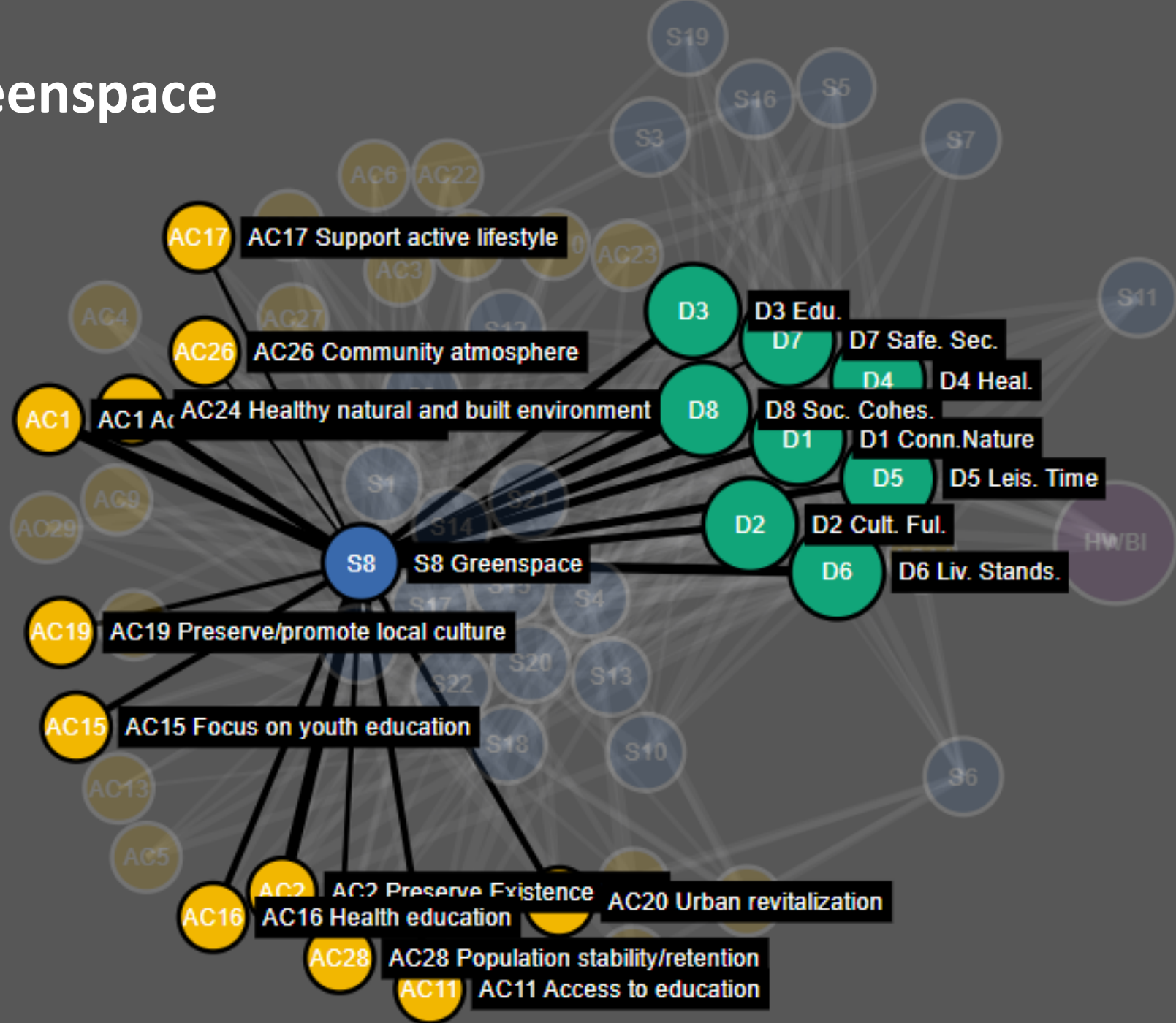
focus of parish stakeholder discussions:

- 1) Maintain Habitat quality/Water Quality
- 2) Minimize waterborne pathogens and safe water supply
- 3) Reduce commute time
- 4) Flood safe housing.
- 5) Coordinating across parish governments/consistency

Public Works



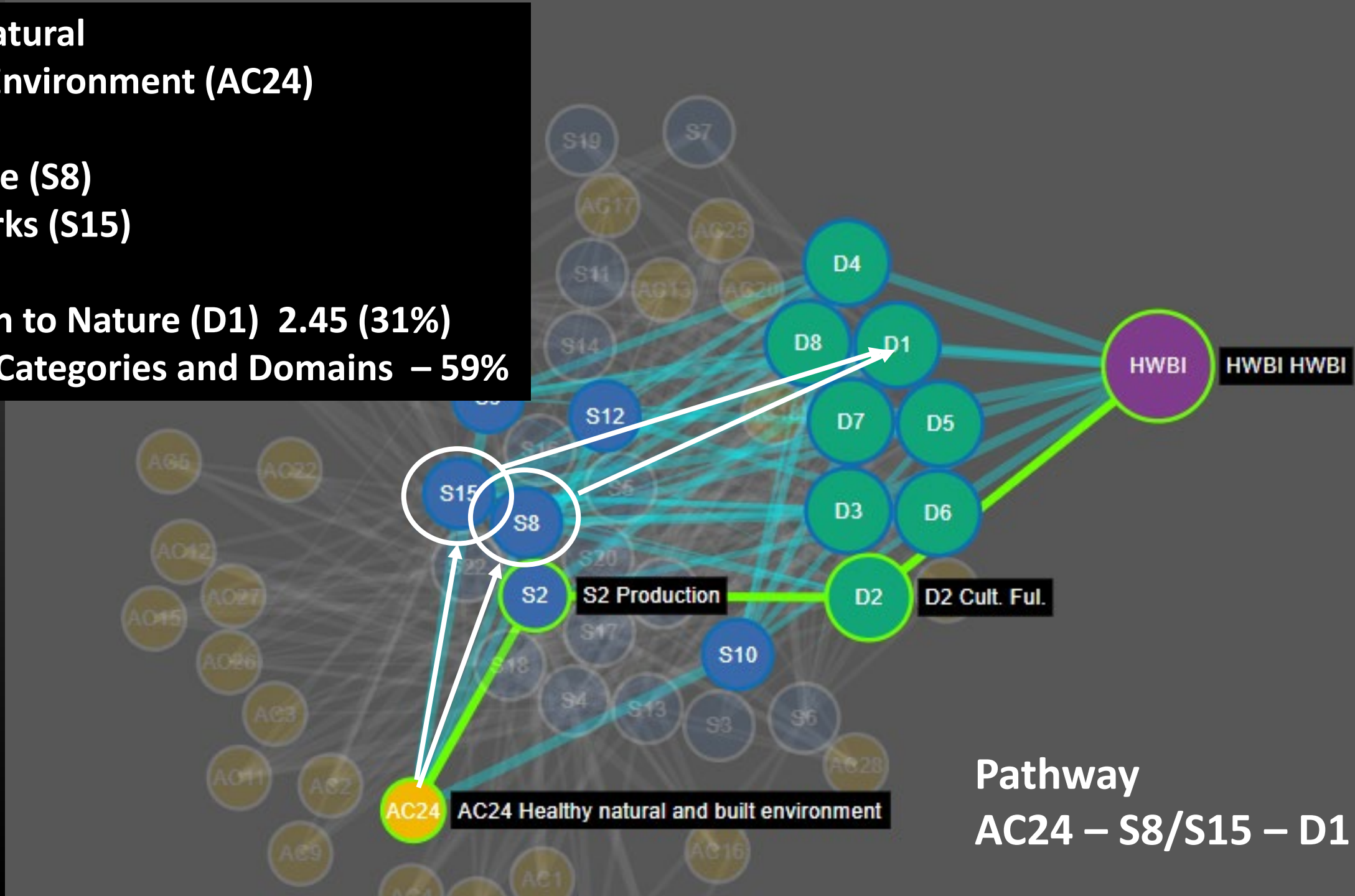
Greenspace



**Healthy Natural
and Built Environment (AC24)**

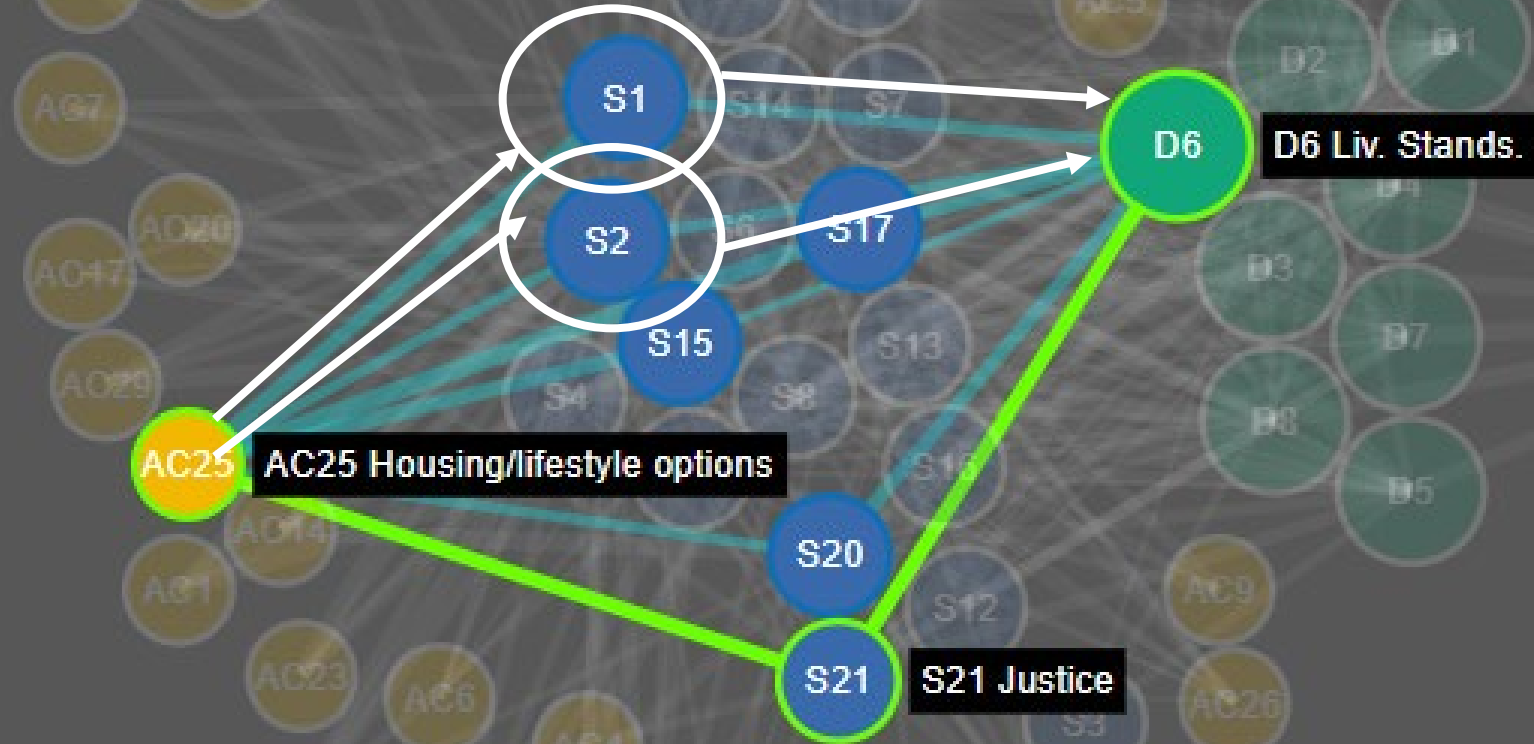
**Greenspace (S8)
Public Works (S15)**

**Connection to Nature (D1) 2.45 (31%)
All Action Categories and Domains – 59%**



**Pathway
AC24 – S8/S15 – D1**

Flood safe housing equity and Transportation - 1.75 (34%)



AC25 AC25 Housing/lifestyle options

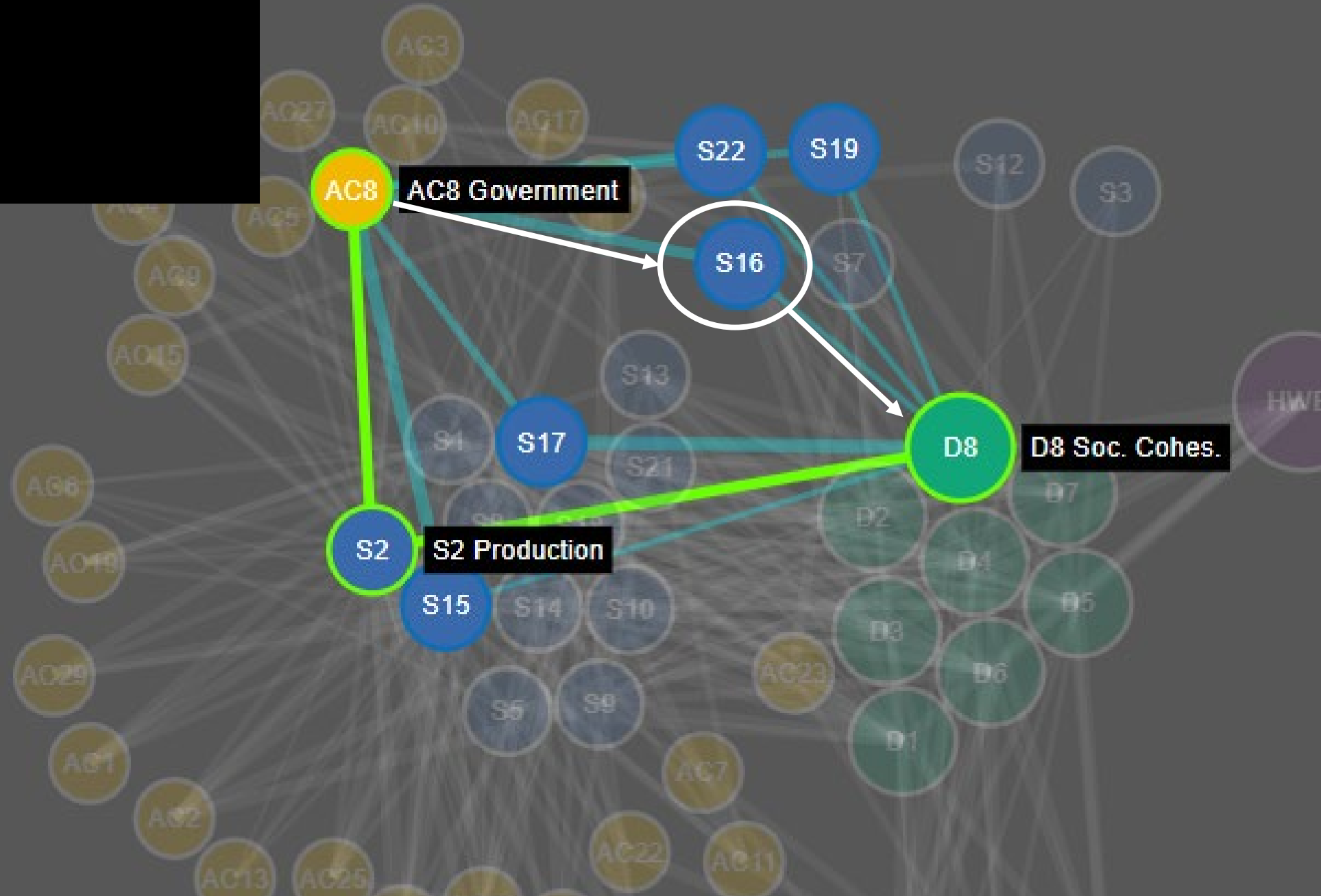
D6 D6 Liv. Stands.

S21 S21 Justice

Pathway
AC25– S1/S2 – D6

**Government –communication
– Social cohesion**

0.889 (10%)



Pathway

AC8– S16 – D8

Realized Roles for flood resilience (four most heavily weighted relevant Roles)

- Public vs Private pathways most influential
- Emphasis on Greenspace for flood capacity
- Flood safe Housing options as a tool for promoting Production and Cap invest. (travel time)
- Government invest in communication and information sharing

Well-being domains – Social cohesion, Living standards, Connection to Nature

Louisiana Resilience Roadmap



Community Resilience Story Maps



