NEW YORK
STATE OF
OPPORTUNITY

Department of
Environmental
Conservation

Climate Justice Working Group
Draft DAC Criteria Update

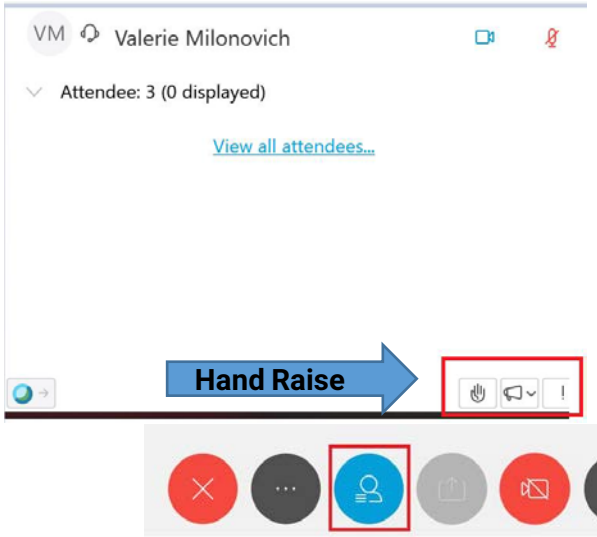
September 17, 2021

Meeting Procedures

Before beginning, a few reminders to ensure a smooth discussion:

- Working Group Members should be on mute if not speaking.
  - If using phone for audio, please tap the phone mute button.
  - If using computer for audio, please click the mute button on the computer screen (1st visual).
- Video is encouraged for Working Group members, particularly when speaking.
- In the event of a question or comment, please use the hand raise function (2nd visual). Click the participant panel button (3rd visual) for the hand raise function. Someone will call on members individually, at which time please unmute
- Please state your name before speaking

You'll see when your microphone is muted



Welcome and Roll Call

Pre-Read Materials for September 17 CJWG Meeting

- Upcoming meetings and decisions
- Legislative review
- Summary of scenario changes (& why)
- Two updated scenarios
- Deep dive on LMI areas
- Questions for Sept 17 discussion
- Appendix 1: Diagnostics that informed recent changes
- Appendix 2: Summary of scoring methodology
- Appendix 3: Rationale for health indicator consideration

Upcoming Decisions

Draft timeline before DAC vote

DAC Work	Proposed Dates*	CAC Meetings
DAC-only: Deep dive into scenarios and designation approach	Sept 17 (1-3pm)	
DAC open questions + CAC as needed	Sept 27-29 Oct 5 (alt)	Oct 1 – Feedback on 3 remaining Advisory Panels
DAC-only: Review and consensus-building before voting	Oct 13 or Oct 19	Oct 14 – Preview of Draft Scoping Plan. Attend/listen.
Vote on DAC scenario(s) to post for public comment	Nov 8-19	Nov 16 – CAC meeting

Would you like one-on-one or small-group Q&A before November vote?

*Limited voting so far – please fill out Alanah's Doodle poll

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Open Questions for Today's Discussion

1. Percentage of state designated (designation threshold)
2. Options to reach/include more low-to-moderate-income households
3. Relative importance of sociodemographic & health vulnerabilities to environmental burdens & climate risks
4. Temperature check: How close are we? What questions do you have before voting?

Progress so far

- Identify and prioritize potential indicators
- Obtain and prepare indicators (including GIS analysis)
- Review potential indicators (quality, coverage, correlations)
- Create scoring approach and Tableau tool to designate DACs
- Review, groundtruth and iterate initial scenario maps
- Assess which indicators are driving decision in DAC designation
- Make changes to factors and weight that feed into criterea
- Assess differences and trade-offs in scenarios
- Propose potential scenarios/criteria for voting

Why is this hard? .

1. How do you test something that has not been made before?
2. How do we balance how different “disadvantaged” can mean so many different things in different areas?
3. How do we balance lived experience and ground-truthing with theory?

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Legislative Review

Purposes of DAC Definition

The [climate justice] working group, in consultation with the department, the departments of health and labor, the New York state energy and research development authority, and the environmental justice advisory group, will establish criteria to identify disadvantaged communities **for the purposes of co-pollutant reductions, greenhouse gas emissions reductions, regulatory impact statements, and the allocation of investments** related to this article

Legislated Criteria

"Communities that bear burdens of negative public health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high-concentrations of low- and moderate- income households."

"Disadvantaged communities shall be identified based on geographic, public health, environmental hazard, and socioeconomic criteria, which shall include but are not limited to:

Areas burdened by cumulative environmental pollution and other hazards that can lead to negative public health effects.

Areas with concentrations of people that are of low income, high unemployment, high rent burden, low levels of home ownership, low level of educational attainment, or members of groups that have historically experienced discrimination on the basis of race or ethnicity.

Areas vulnerable to the impacts of climate change such as flooding, storm surges, and urban heat island effect."

40% Benefits Goal

"State agencies, authorities and entities, in consultation with the environmental justice working group and the climate action council, shall, to the extent practicable, invest or direct available and relevant programmatic resources in a manner designed to **achieve a goal for disadvantaged communities to receive forty percent of overall benefits of spending** on clean energy and energy efficiency programs, projects or investments in the areas of housing, workforce development, pollution reduction, low income energy assistance, energy, transportation and economic development, provided however, that disadvantaged communities shall receive **no less than thirty-five percent** of the overall benefits of spending on clean energy and energy efficiency programs, projects or investments and provided further that this section shall not alter funds already contracted or committed as of the effective date of this section."

The CJWG has discussed that the 40% goal should be considered a minimum, and that non-DAC communities are still eligible for the remaining ~60% of funds.

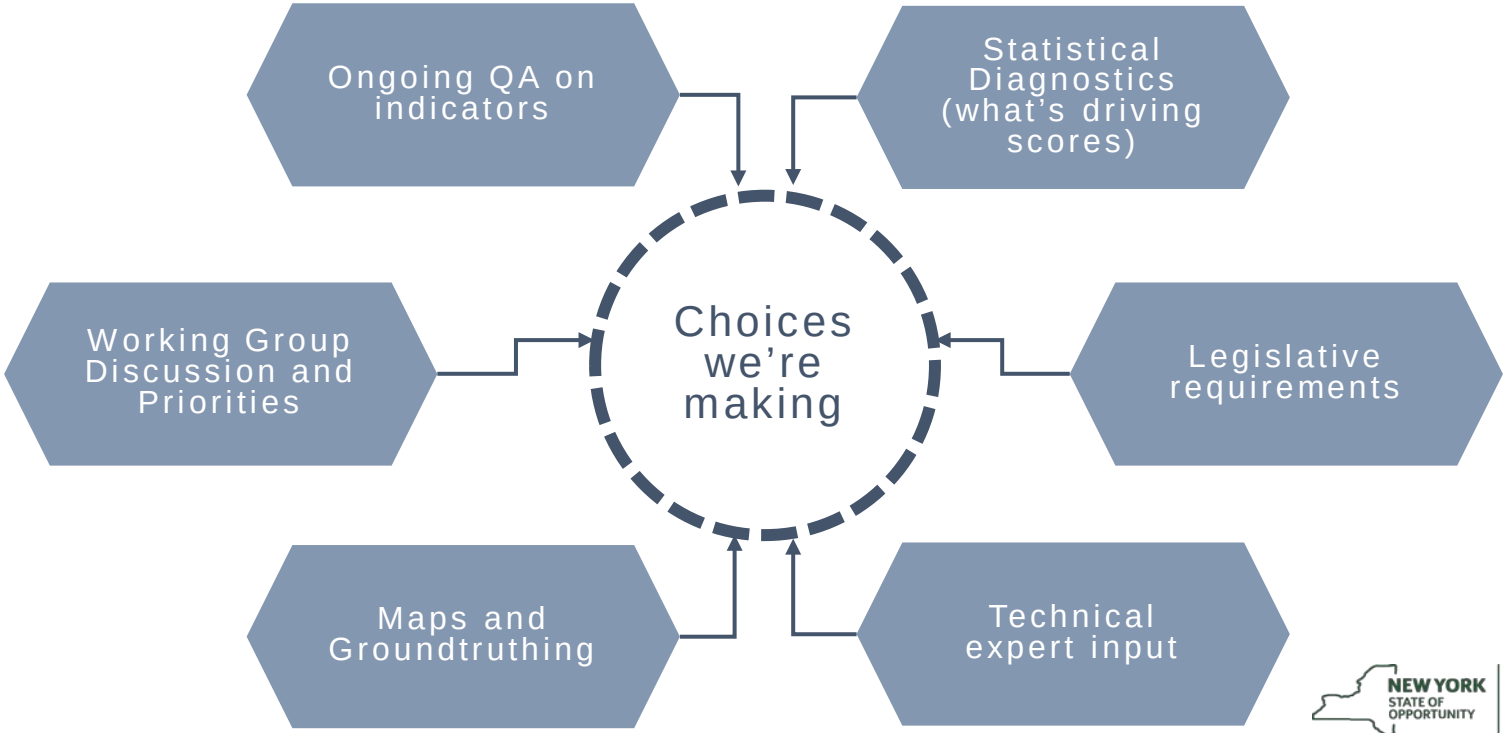
Opportunity for Annual Review

The [climate justice working] group will meet no less than annually to review the criteria and methods used to identify disadvantaged communities and may modify such methods to incorporate new data and scientific findings. The climate justice working group shall review identities of disadvantaged communities and modify such identities as needed

With the opportunity for annual review, these draft scenarios are a starting point

Summary of Changes (& why)

Multiple inputs to inform changes



Question/ Consideration	What we heard or tested	What we learned or changed
Income	Make sure scores emphasize Income	Scores are very heavily driven by income, race/ethnicity, asthma and renter status
	Analysis/maps to see what LMI areas may be excluded, and why	Yes, some LMI areas are excluded, generally because their environmental and climate burdens are low. We expanded the designation threshold to include more tracts overall, and have a few more ideas for you.
	Analysis/maps to see what would happen if we exclude high-income tracts	Relatively few higher-income tracts are included, and those included appear to have meaningful EJ burdens or climate risks (we don't recommend exclusions)
Race/Ethnicity	Make sure scores emphasize BIPOC	Double weights on Pct Black and Pct Latino/a Created separate (stand-alone) factor for race, ethnicity, language and redlining
Indicator/ Factor Contribution	Assess whether scores are adequately representing burdens or vulnerabilities CJWG cares about	In interim scenarios we found that indicators for (a) proximity to EJ concerns (facilities), climate risks and rural areas were not having much influence. We modified factor weights slightly but considering the correlated and/or cumulative effects represented by other indicators, these indicators may not exert much influence.
Opportunity to Streamline List	Assess whether any indicators can/should be removed	We removed just two highly-correlated indicators (utility/waste land area; pct without private vehicle) that (a) are well-represented by other indicators, and (b) their duplicative effects may have been limited potential influence of other indicators.

Expanding Number of DACs

Designate *less* than 40%

Pros: May encourage proportionally *more* money to go to DACs
Room to expand later
Cons: Leaves out some LMI and socially-vulnerable DACs

Designate about 40%

Pros: Captures more groundtruthed and LMI DACs

Cons: Still may not capture some LMI and socially-vulnerable DACs

Designate *more* than 40%

Pros: Captures more groundtruthed and LMI DACs

Cons: Proportion of DACs is less than the funding goal
Difficult to remove DACs later

Most of the scenarios we have been assessing fall between 35% to 45%

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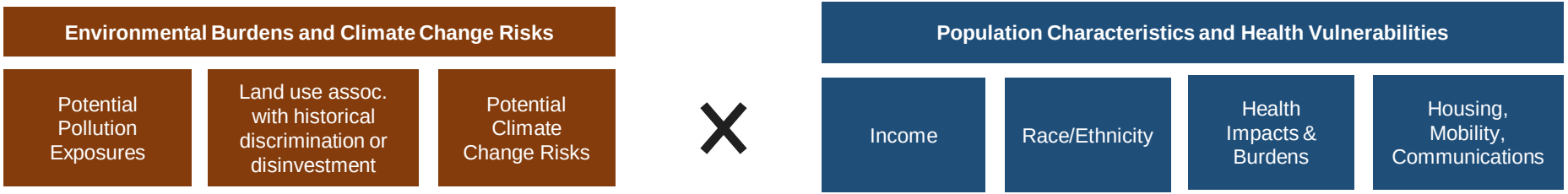
Revised factors: Split income and race/ethnicity

In August, we split Income indicators (5 indicators) and Race/Ethnicity indicators (5 indicators) into two separate factors to ensure these critical indicators do not get overshadowed by other sociodemographic indicators.



Note: Since Burdens and Vulnerabilities are multiplied, they have equal influence, regardless of the # of factors or how you weight things within them.

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In August we removed two correlated indicators and added one

Discussed in July:

Having extra indicators can muddy or mute effects of indicators that are more important to you. And starting with fewer indicators may leave more room for changes after public comment.

Other considerations:

With the current factor structure, and approach of weighting factors, it is not essential to completely streamline the variable list.

For now we removed just two highly-correlated indicators (utility/waste land area; pct without private vehicle) and can continue to test removing others if needed.

Additional indicators:

Added Percent Asian to Race/Ethnicity

Automatically including 19 Tribal and Indigenous Areas

Census Tract	County	Census Place Name	Nation	Land	Pct of Tract Land Area
36009940200	Cattaraugus		Seneca Nation	Reservation	100%
36029940100	Erie		Tonawanda Seneca	Reservation	100%
36003940200	Allegany		Seneca Nation	Reservation	100%
36033940000	Franklin	Akwesasne CDP	Saint Regis Mohawk Tribe	Reservation	100%
36067940000	Onondaga	Nedrow CDP	Onondaga Nation	Reservation	99%
36037940100	Genesee		Tonawanda Seneca	Reservation	99%
36063940001	Niagara		Tuscarora Nation	Reservation	99%
36009940300	Cattaraugus	Salamanca city	Seneca Nation	Reservation	99%
36009940000	Cattaraugus		Seneca Nation	Reservation	99%
36029940000	Erie		Seneca Nation	Reservation	99%
36063940100	Niagara		Tonawanda Seneca	Reservation	98%
36013037600	Chautauqua	Forestville CDP	Seneca Nation	Reservation	6%
36103159511	Suffolk	Mastic CDP	Unkechaug Nation	Reservation	6%
36103190705	Suffolk	Tuckahoe CDP	Shinnecock Nation	Reservation	6%
36099950300	Seneca	Seneca Falls CDP	Cayuga Nation	Owned	13%
36053030103	Madison	Oneida city	Oneida Nation	Owned	10%
36053030300	Madison	Canastota village	Oneida Nation	Owned	7%
36063021100	Niagara	Niagara Falls city	Seneca Nation	Owned	7%
36053030600	Madison	Munnsville village	Oneida Nation	Owned	6%

Tribal and Indigenous Nation Lands if:

- Tract contains >5% federally-designated reservation territory (Source: Census)
- Tract contain >5% of nation-owned land (Source: NYS parcel ownership data)

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Low Population Areas

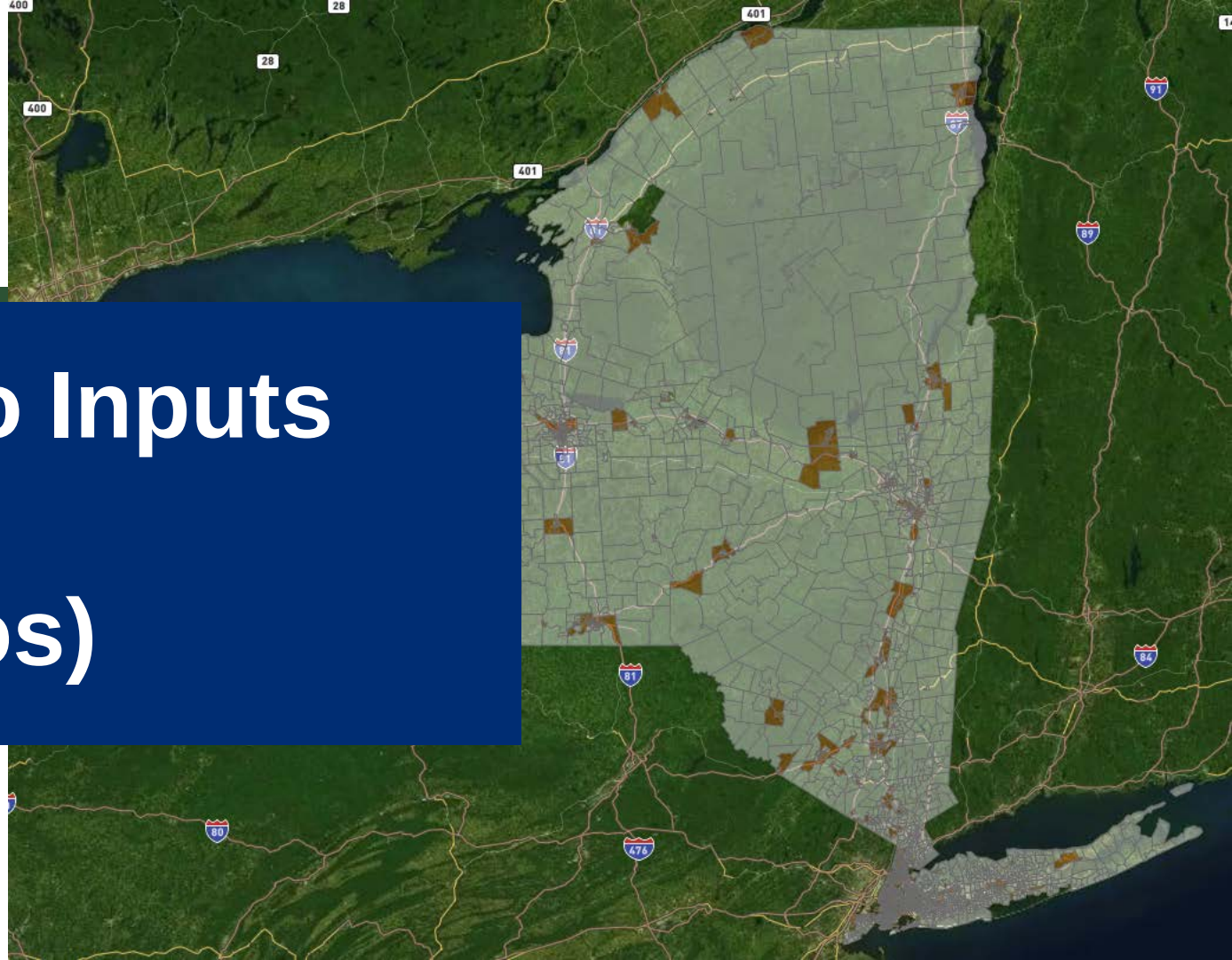
138 of 4,918 tracts (2.8%) have populations that are too low for reliable people & household data (<300 households or <500 people)

This includes sparsely-populated areas as well as group quarters like correctional facilities where there is no “household” data on things like household income

We will **include them on the basis of Environmental/Climate Burdens alone** (if their Burdens score fall in the top ##% statewide or top ##% for NYC or Rest-of-State) (using same designation threshold as overall scoring)

These are not included in maps yet to facilitate easier analysis of scoring approach

Scenario Inputs (for new scenarios)

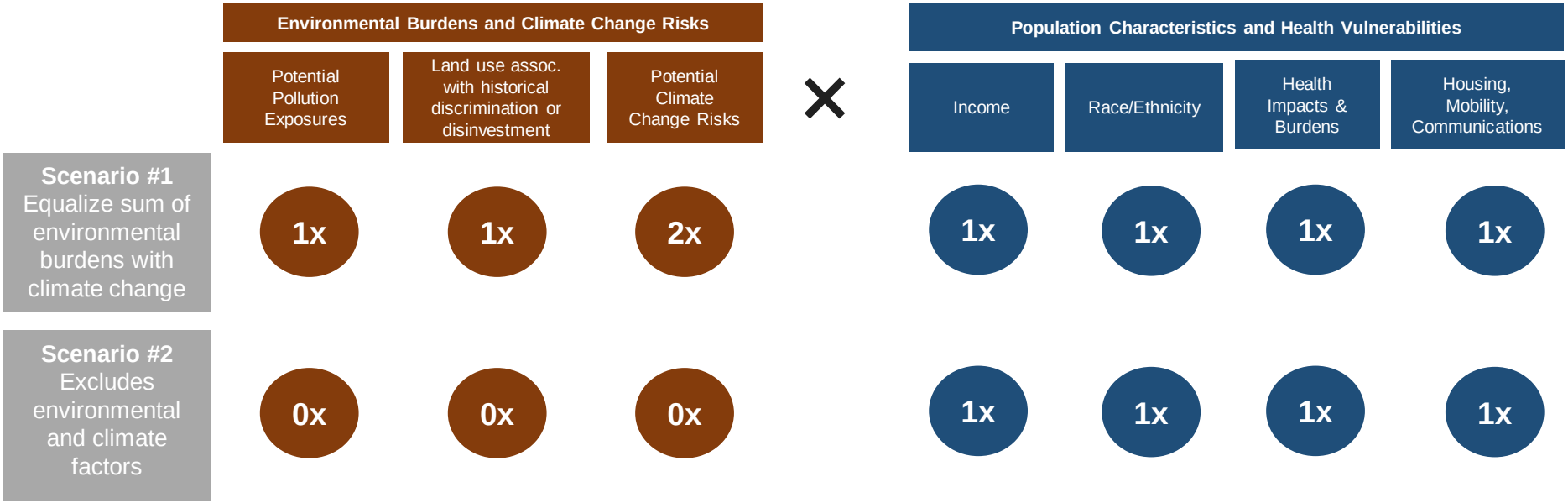


Two scenarios to spark discussion

Scenario 1	Scenario 2
Balanced representation of environmental burdens and climate change risks, and population and health vulnerabilities. Similar to August 26 scenarios	Population & health only - Excludes environmental burdens & climate risks Built to spark discussion, so you can see things without environmental or climate considerations.

Throughout our meetings, we've heard WG members describe disadvantaged communities in terms of **income, BIPOC, health impacts, living and working conditions** and resources available to respond to threats and recover from climate change shocks

Factor weights in these scenarios



Note: Since Burdens and Vulnerabilities are multiplied, they have equal influence, regardless of the # of factors or how you weight things within them. Therefore, we needed to create scenario #2 completely without them, to show what greater emphasis on Vulnerabilities might look like.

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Designation Threshold

Both scenarios designate about 37% to 38% of tracts as DACs

To capture more communities, including more LMI communities, we increased the regional and statewide designation threshold to 30% in each.

Combining the top 30% statewide, in NYS and Rest-of-State means 37-38% of tracts would be designated.

Environmental Burdens and Climate Change Risks: Included Indicators (same as Aug 26)

Potential Pollution Exposures

- Vehicle traffic density Diesel truck and bus traffic
- Particulate Matter (PM2.5)
- Benzene concentration
- Wastewater discharge

Land use and facilities associated with historical discrimination or disinvestment

- Remediation Sites (e.g., NPL Superfund or State Superfund/Class II sites)
- Regulated Management Plan (chemical) sites
- Major oil storage facilities (incl. airports)
- Power generation facilities
- Active landfills
- Municipal waste combustors
- Scrap metal processors
- Industrial/manufacturing/mining land use (zoning)
- Housing vacancy rate

Potential Climate Change Risks

- Extreme heat projections (>90° days in 2050)
- Flooding in coastal and tidally influenced areas (projected)
- Flooding in inland areas (projected)
- Low vegetative cover
- Agricultural land
- Driving time to hospitals or urgent/critical care

Only Scenario 1 has these Environmental and Climate indicators

Population Characteristics and Vulnerabilities: Included Indicators (same as Aug 26)

Income	Race & Ethnicity	Health Impacts & Sensitivities	Housing, Mobility, Communications
• Pct <80% Area Median Income • Pct <100% of Federal Poverty Line • Pct without Bachelor's Degree • Unemployment rate • Pct Single-parent households	• Pct Latino/a or Hispanic • Pct Black or African American • Pct Asian • Limited English Proficiency • Historical redlining score	• Asthma ED visits • COPD ED visits • Heart attack (MI) hospitalization • Premature Deaths • Low Birthweight • Pct without Health Insurance • Pct with Disabilities • Pct Adults age 65+	• Pct Renter-Occupied Homes • Housing cost burden (rental costs) • Energy Poverty / Cost Burden • Manufactured homes • Homes built before 1960 • Pct without Internet (home or cellular)
Within this factor, both income metrics have 2x weight	Within this factor, Pct Latino/a and Pct Black have 2x weight		

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Scenario results with these adjustments

Regional Distribution

% Region Designated DAC

Region	S1 %DAC	S2 %DAC
New York City	47%	45%
Long Island	14%	20%
Mid-Hudson	44%	31%
Western NY	37%	39%
Finger Lakes	36%	36%
Capital Region	24%	25%
Central NY	37%	33%
Southern Tier	25%	35%
Mohawk Valley	27%	29%
North Country	15%	28%
Grand Total	38%	37%

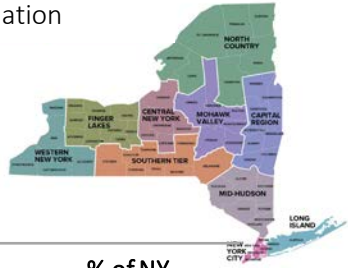
When environmental and climate burdens are included **(S1)** more communities in NYC, Mid-Hudson, Central NY would be designated.

When burdens are excluded **(S2)**, more communities in Long Island, Southern Tier, Western NY, Mohawk Valley, and North Country would be designated.

In Scenario 1 about 15% of North Country would be designated, compared with 28% in Scenario 2

37% to 38% of tracts are designated. This is adjustable.

Share of NY Population



Region	% of NY Population
New York City	43%
Long Island	15%
Mid-Hudson	12%
Western NY	7%
Finger Lakes	6%
Capital Region	6%
Central NY	4%
Southern Tier	3%
Mohawk Valley	2%
North Country	2%
Total	**100%**

Summary Statistics

	Scenario 1		Scenario 2		
	DAC	Non	DAC	Non	Total
<80% AMI	62%	34%	63%	34%	**45%**
<100% FPL	23%	9%	24%	9%	**14%**
Black/African American	30%	11%	33%	9%	**18%**
Latino/Latina	31%	10%	31%	10%	**18%**
Asian	9%	10%	9%	10%	**9%**
Burden Score	52	47			
Vulnerability Score	61	37	63	36	**46**

As designed, DAC tracts have far more lower-income, Black/African American and Latino/Latina households.

The exclusion of environmental burdens in S2 has a small impact on overall income and race/ethnicity except for including slightly more tracts with Black/African American residents

As designed, DACs have a much higher vulnerabilities score (61 vs. 37), while burdens score in S1 is somewhat higher (~52 vs. ~47).

Rural Areas

- Even after making numerous adjustments to allow “rural” indicators to have more influence, proportionally fewer rural areas are classified as DACs
- Based on diagnostic analysis in August we saw that the indicators meant to capture burdens and vulnerabilities in rural areas weren’t having as much influence in the combined model (considering the many indicators correlated with higher density and/or urban areas)
- When you look at specific rural tracts, how does this feel to you? Do you think they are generally less disadvantaged?

Percent of Region Designated			
S1 % are DACs		S2 % are DACs	
rural	13%	rural	13%
suburban	28%	suburban	26%
urban	51%	urban	51%
Total	38%	Total	37%

Nearly half of urban tracts are designated as DACs, while 13% of rural tracts are designated.

	Number of Tracts	Pct of Statewide Population
Rural	857	17%
Suburban	1,479	33%
Urban	2,570	49%

As a reference, about 17% of New York’s population lives in rural census tracts

The NCES locale framework classifies all territory in the U.S. into four types of areas -- City, Suburban, Town, and Rural. Each area is divided into three subtypes based on **population size** (in the case of City and Suburban assignments) and **proximity to urban areas** (in the case of Town and Rural assignments). The classifications (350 KB) rely on standard urban and rural designations defined by the U.S. Census Bureau, and **each type of locale is either urban or rural in its entirety.**

Comparison with groundtruthing

Overall agreement

CJWG & Scenario both agree it's a DAC

CJWG & Scenario both think it's not a DAC (f

Agreement with Groundtruthing	
S1 % Agreement	71%
S1 % Agree - DAC	69%
S1 % Agree - NonDAC	70%
S2 % Agreement	82%
S2 % Agree - DAC	75%
S2 % Agree - NonDAC	95%

Higher groundtruthing agreement for Scenario 2 that only include population & health indicators

Groundtruthing is one of multiple ways we assess how well scores fit CJWG interests and legislated criteria – including theory, scientific review and other DAC-like metrics (e.g., PEJA).

Relatively few of New York's 4,918 tracts are groundtruthed, and we understand that we only have "pockets" of groundtruthing. As such, this is NOT the key driver of our shifts in scenarios, but one of several ways we look at how the scenarios work.

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Take-aways

Excluding environmental/climate burdens changes the regional distribution (regions of the state with more DACs) - Regional shares are more balanced in Scenario 2

Focusing on social, health and housing vulnerabilities seems better-aligned with groundtruthing

Still, excluding environmental/climate burdens doesn't alter the proportion of rural areas designated

(When you look at specific rural areas, how does this feel to you? Do you think they are generally less disadvantaged?)

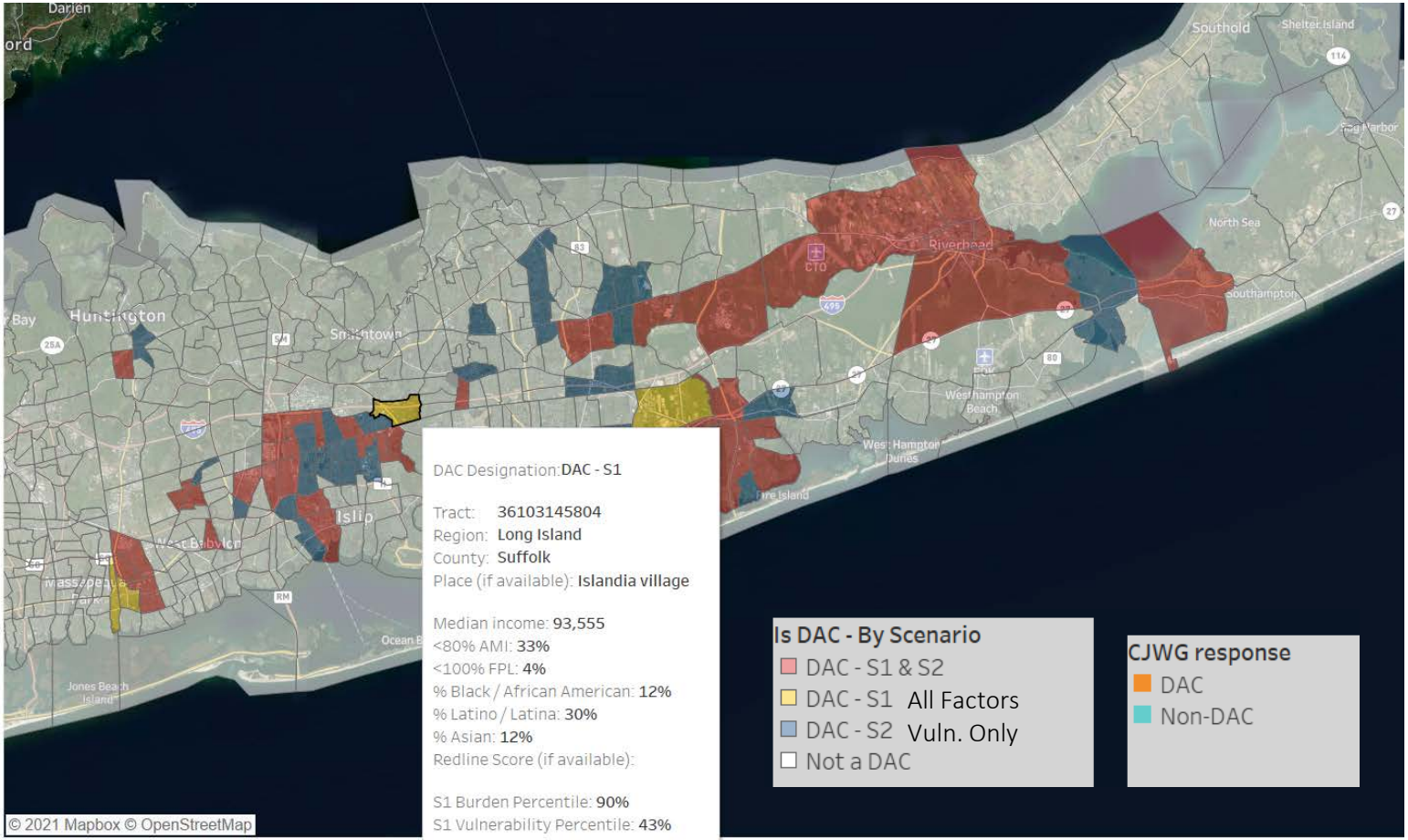
Screenshots of areas we've discussed

We built Scenario 2 to spark discussion. Throughout our meetings, we've heard WG members describe disadvantaged communities as not just communities that are at risk of climate change but communities who do not have the means or power to recover from a climate shock.

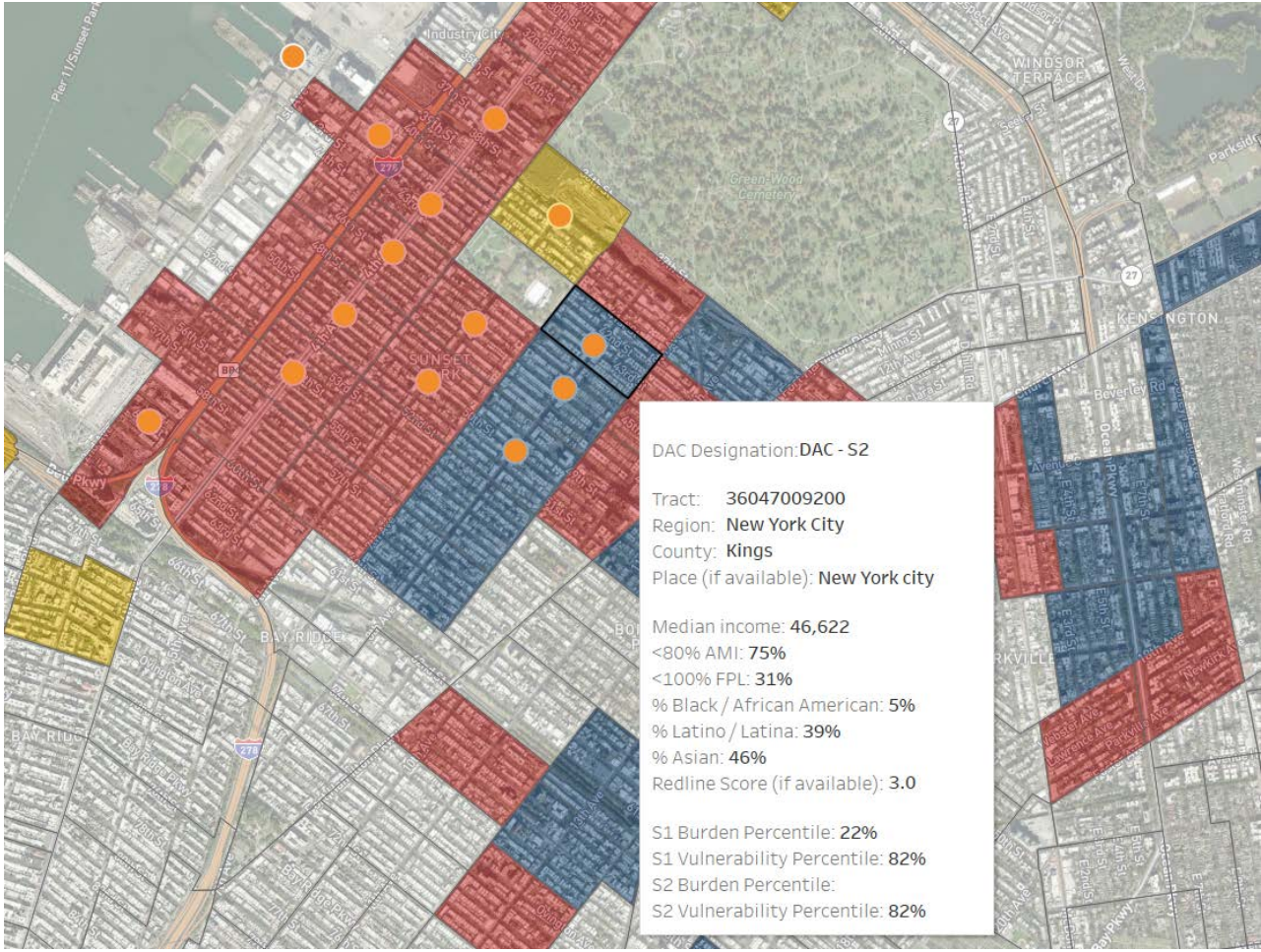
The next few slides show screenshots of several areas we've discussed

When you review the following maps, please think about how well communities in each scenario may respond to, adapt or recover from environmental threats or climate risks.

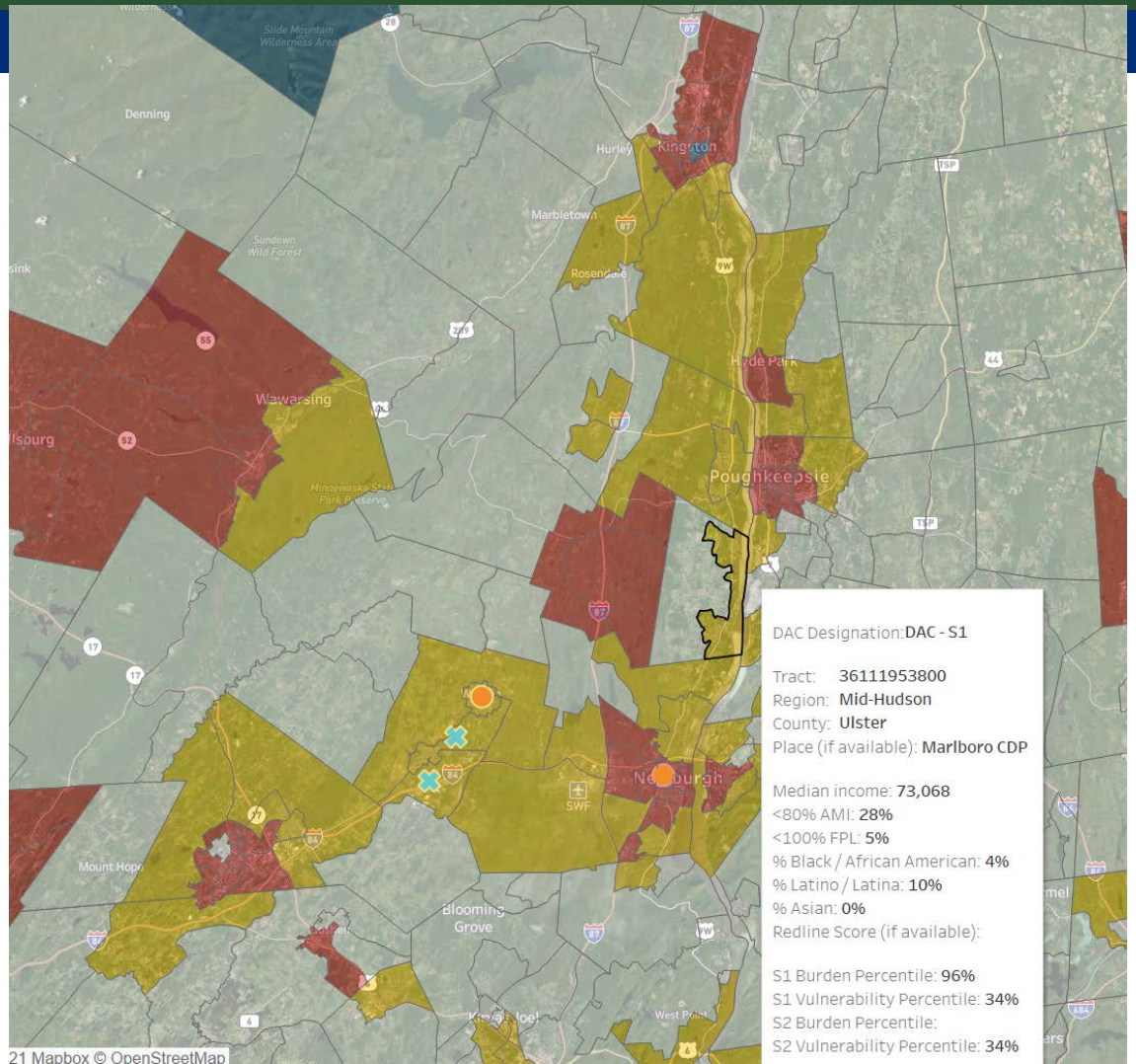
Coastal Long Island



Sunset Park


Is DAC - By Scenario
DAC - S1 & S2
DAC - S1 All Factors
DAC - S2 Vuln. Only
Not a DAC
CJWG response
DAC
Non-DAC
DAC Designation: DAC - S2
Tract: 36047009200
Region: New York City
County: Kings
Place (if available): New York city
Median income: 46,622
<80% AMI: 75%
<100% FPL: 31%
% Black / African American: 5%
% Latino / Latina: 39%
% Asian: 46%
Redline Score (if available): 3.0
S1 Burden Percentile: 22%
S1 Vulnerability Percentile: 82%
S2 Burden Percentile:
S2 Vulnerability Percentile: 82%

Hudson River area (higher flood risk)



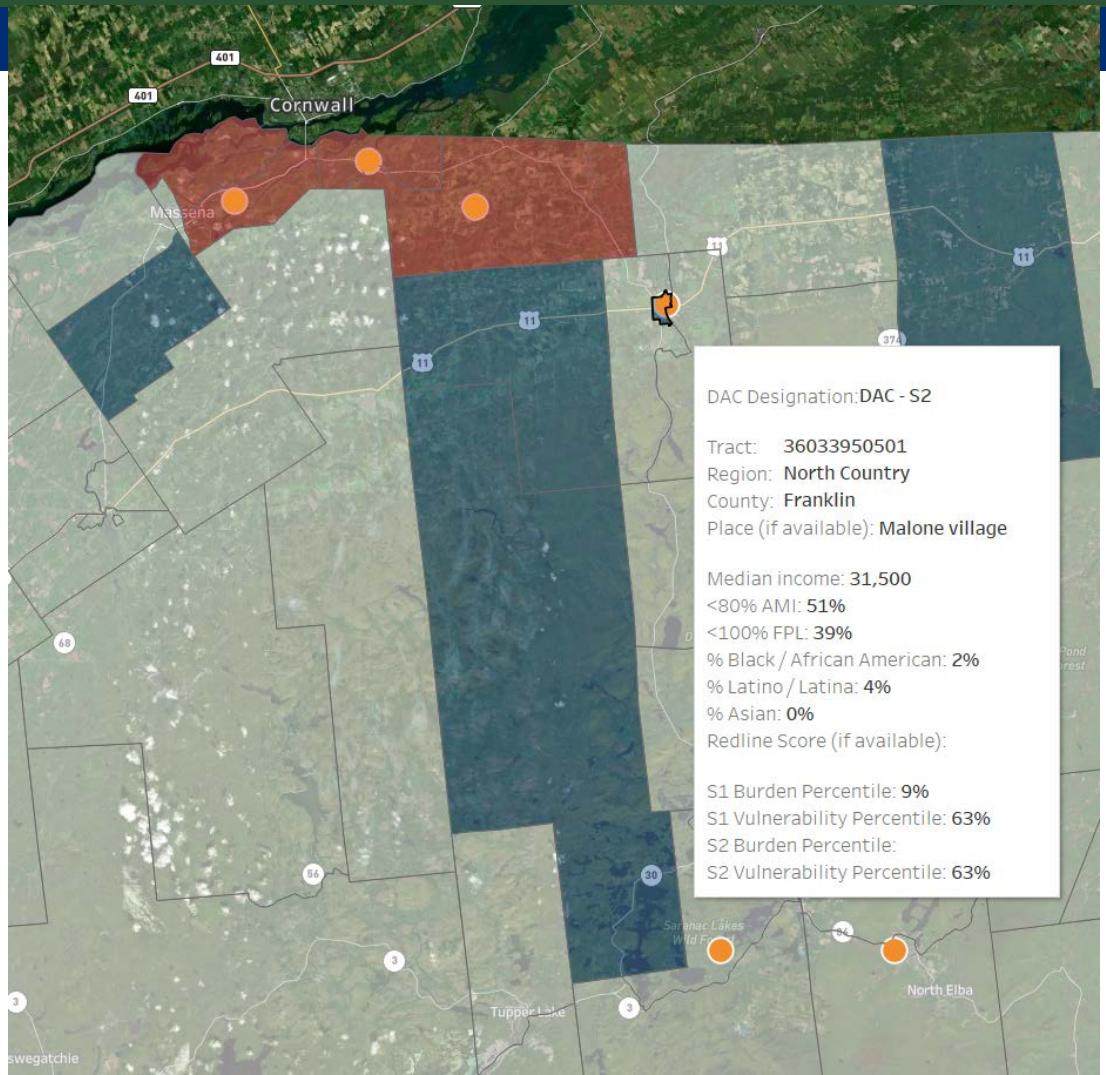
Is DAC - By Scenario

- DAC - S1 & S2
- DAC - S1 All Factors
- DAC - S2 Vuln. Only
- Not a DAC

CJWG response

- DAC
- Non-DAC

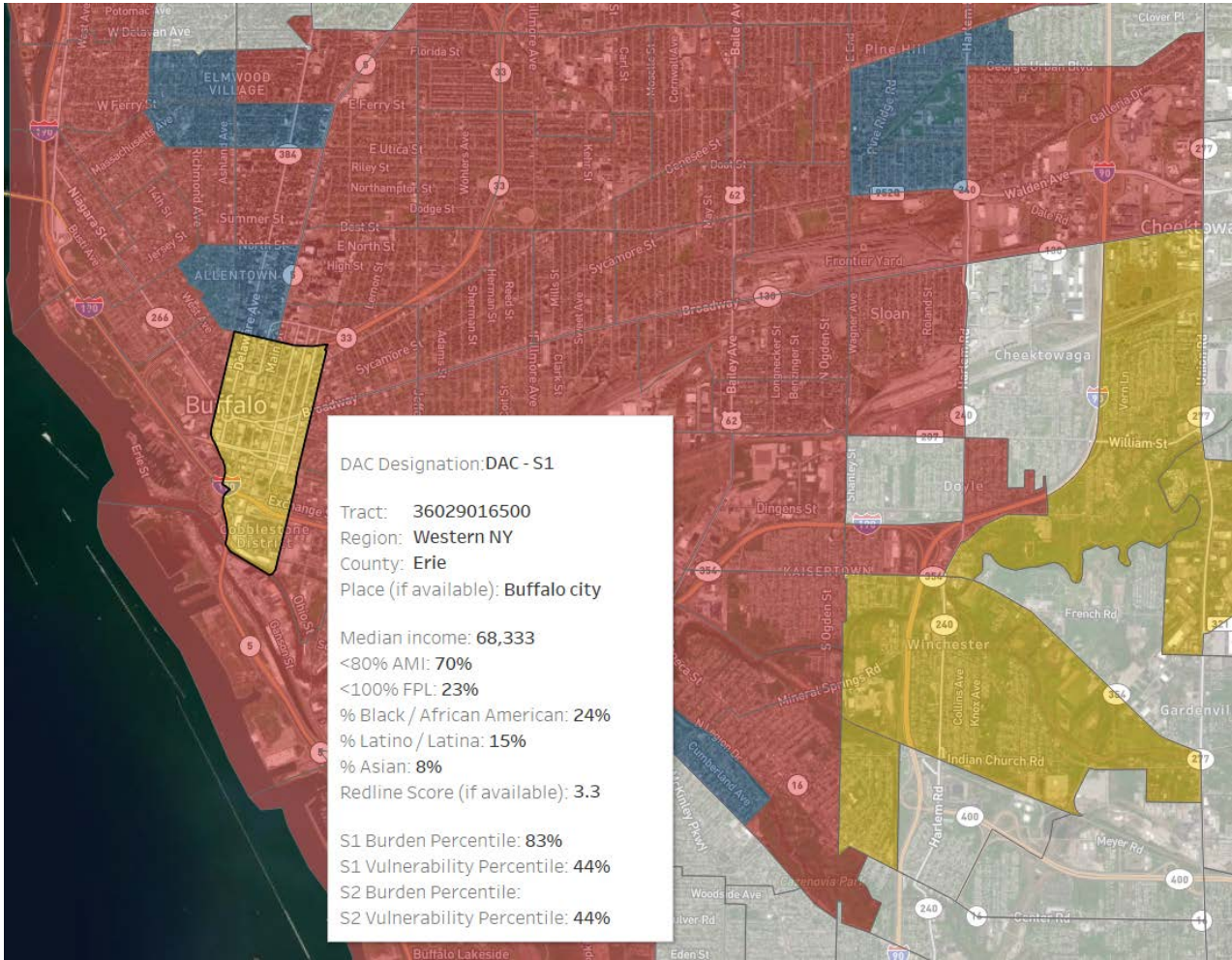
Massena (North Country)



Is DAC - By Scenario
- DAC - S1 & S2
- DAC - S1 All Factors
- DAC - S2 Vuln. Only
- Not a DAC

CJWG response
- DAC
- Non-DAC

Buffalo


DAC Designation:DAC - S1
Tract: 36029016500
Region: Western NY
County: Erie
Place (if available): Buffalo city
Median income: 68,333
<80% AMI: 70%
<100% FPL: 23%
% Black / African American: 24%
% Latino / Latina: 15%
% Asian: 8%
Redline Score (if available): 3.3
S1 Burden Percentile: 83%
S1 Vulnerability Percentile: 44%
S2 Burden Percentile:
S2 Vulnerability Percentile: 44%
Buffalo
ALLENTOWN
ELMWOOD VILLAGE
Cheektowaga
Sloan
Doyle
Winchester
KAISERTOWN
Pine Hill
Frontier Yard
Is DAC - By Scenario
DAC - S1 & S2
DAC - S1 All Factors
DAC - S2 Vuln. Only
Not a DAC
CJWG response
DAC
Non-DAC

If you like the idea of including more LMI, socially vulnerable and/or health-sensitive tracts, some options to consider

1. Increase designation threshold (we already increased slightly)
2. Add tracts based on Population/Health alone (e.g., social vulnerability) regardless of Environmental/Climate Burdens

Could implement as:

- Use existing multiplicative scoring approach (making some adjustments in Sept/Oct)
- Add tracts in top ##% of Population/Health Vulnerability (percentage TBD)

Questions to consider in September

What is the relative importance of sociodemographic vulnerabilities to environmental burdens & climate risks?

Temperature check: Are we capturing the areas you think we need to capture?

Lower-income area deep dive

Lower-income tracts

What we heard from you: Income is a key criteria, and you are concerned about lower-income areas that may be not designated

What we learned:

- Income, race, ethnicity, asthma and renter status are the strongest drivers on the scores overall. This is by design (factor structure + higher indicator weights on race/ethnicity)
- However, there are still lower-income tracts that are not DACs. They are generally not DACs because their Burdens score (environmental or climate) is relatively low within their region (NYC or ROS) or statewide.
- Heavier income weights within the Population/Health component doesn't move the needle much – because in the multiplicative scoring system, Environmental/Climate burdens are equally influential as Population/Health

Potential Next Steps (if you want to include more lower income areas)

- Increase designation threshold (we already increased slightly)
- Inclusion based on Population/Health alone (e.g., social vulnerability) regardless of Environmental/Climate Burdens (*discussed more later*)

Why Two Income Measures?

Both included income metrics,<100% of Federal Poverty Line and <80% of Area Median Income, are indexed to household size.

Federal Poverty Line: Lower threshold, but the same nationally. Inlcuded to find deeper entrenched poverty.

Area Median Income: Higher threshold, and indexed to metropolitan areas or fair market rent areas. Included to find low-to-moderate income (LMI).

Example Income Thresholds

Both included income metrics,<100% of Federal Poverty Line and <80% of Area Median Income, are indexed to household size. The Federal Poverty Line is lower, but the same nationally. Area Median Income is higher, and indexed to metropolitan areas or fair market rent areas.

Location (Examples)	2-person household	
	100% of Federal Poverty Line*	80% of Area Median Income**
Albany-Schenectady-Troy, NY MSA	$17,420	$61,200
New York, NY HUD Metro FMR Area	$17,420	$76,400
Buffalo-Cheektowaga-Niagara Falls, NY MSA	$17,420	$50,500
Nassau-Suffolk, NY HUD Metro FMR Area	$17,420	$75,950
Lewis County, NY	$17,420	$44,400
Clinton County, NY	$17,420	$46,000
Poughkeepsie-Newburgh-Middletown, Metro	$17,420	$63,950

*2021 Federal Poverty Level. Source: https://www.healthcare.gov/glossary/federal-poverty-level-fpl/
** 2021 AMI. Source: https://www.huduser.gov/portal/datasets/il/il21/Section8-IncomeLimits-FY21.pdf

What about lower-income non-DACs?

Even with heavy weighting toward income and income correlates, some lower-income areas won't be included.

In the lowest 20% of income levels (927 tracts):

- **91% of tracts are included** as DACs (812 tracts)
- 10% are excluded under Scenario 1
- 9% are excluded under Scenario 2
- 7% are excluded from both (61 tracts)

In Scenario 1 these include tracts where Environmental/Climate burdens are relatively low.

In Scenario 2 these include tracts with fewer BIPOC residents and lower health sensitivities

Revisiting options to include more LMI tracts

1. Increase designation threshold (already implemented)
2. Add tracts based on Population/Health alone (e.g., social vulnerability) regardless of Environmental/Climate Burdens.
3. Use “individual criteria” (i.e., low-income households) on top of the geographically-based approach.

We tabled this idea to get to a geographically-based criteria, but we’re bringing it back because it could address some of the challenges we’re seeing

Individual Criteria

Justice40 and California include individuals in definitions and benefits framework

Justice40 includes individuals in community definition	**Community** – Agencies should define community as "either a group of individuals living in geographic proximity to one another, or a geographically dispersed set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions."[5]
California Climate Investments considers spending for "priority populations"	"Priority populations" are DACs, LMI communities and LMI households Low-income communities and households are those with incomes either at or below 80 percent of the statewide median or below a threshold designated as low-income by the Department of Housing and Community Development

https://www.acwa-us.org/wp-content/uploads/2021/07/epaEJMemo.pdf
http://www.caclimateinvestments.ca.gov/priority-populations

Questions to consider in September

What options or combinations do you prefer to designate more LMI and/or socially-vulnerable households?

What about lower-income households in non-DACs? Could including them through an individual definition ensure we reach more vulnerable households?

Higher-income area deep dive

Are there higher-income DACs?

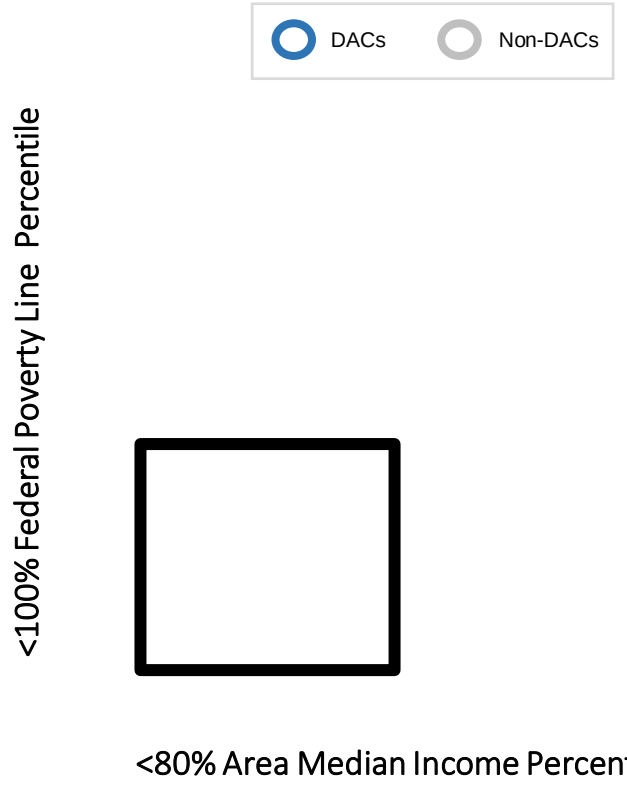
A few months ago, we were concerned about higher-income tracts being included, and whether we should have a rule to exclude high-income tracts

We examined the data and found that:

- Relatively few higher-income tracts are included (by design; income is weighted highly and correlated with many indicators)
- The few higher-income tracts included have high environmental burdens or climate risks and in each case it's possible to explain why they are DACs (← though please take a closer look!)

Next steps: If you'd like to take a closer look at these, we can do that within the next meeting or in a separate call. Otherwise we suggest addressing other aspects of the scoring scenario and lower-income before considering exclusion rules.

Are there any high-income DACs? What would happen if we excluded them?



This quadrant is higher-income tracts.
There are not many higher-income DACs. We started to look at them and in most cases they have higher environmental burdens and/or climate risks and it may be reasonable to leave them.

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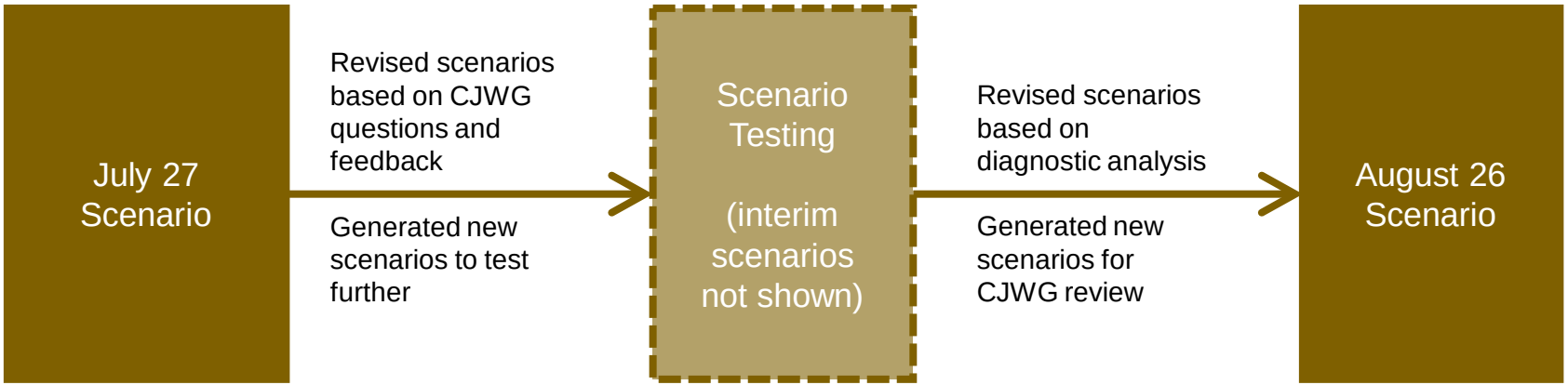
Appendix 1: What we learned through August scenario testing

Before August 26, we conducted several analyses to understand what indicators were influencing DAC designation

The analysis in this section is from **prior** scenarios, not the scenarios shown above.

The results informed some of the adjustments we made to arrive at the scenarios above.

Before August 26, we conducted several analyses to understand what indicators were influencing DAC designation



Understanding What's Driving Scores

same process; nothing new

a new way to look at results

1. Go through our process of scoring and classifying DACs **(same process you've seen!)**

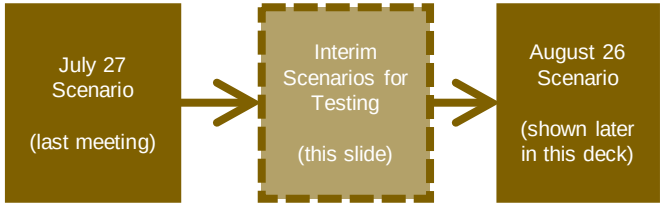
2. Get our list of DACs and Non-DACs

3. Look back at what indicators are most correlated with (or predictive of) the DAC designation, *since so many are correlated*

Even though our "recipe" had similar amounts/levels of some things, because some indicators are correlated and some are unique, some end up *more correlated* with final scores

Even with a recipe (the indicator and factor weights), because of correlations between some indicators, some indicators end up more correlated with DAC scores

What we learned through scenario testing



- Strongest relationship to prior DAC scenarios:
  - Income, asthma, renters, Pct Latino/a, Pct Black
  - Also high: Single parent, premature deaths, COPD, less than Bachelor's degree, no internet, low birthweight
  - Most of these trend higher in urban areas
- Weaker relationship to prior DAC scenarios:
  - Rural correlates (agricultural land, manufactured/mobile homes, driving time to hospital, age 65+)
  - Proximity to each specific facility type alone (landfill, waste, scrap metal, oil storage, remediation)
  - Climate change risks (esp. coastal and inland flooding)

Conclusions:

- As expected, scores heavily-driven by income, race, and negative health impacts
- However, we want to make sure we're not missing potential DACs in climate-vulnerable and/or rural areas…and we tested several adjustments

More influential indicators

After scoring and classifying communities as DACs using the interim scenarios, we looked at how strongly each indicator is correlated with the DAC classification.

High influence (and high correlation with scores)	Moderate influence	Low influence	Weak influence (or weak correlation with scores)

Strong influence means these are very strong drivers of the scores.

While this may be good news for some indicators, there may also be wiggle room to remove collinear variables and make room for others.

No and low influence means that tracts scoring high on these characteristics won't get picked up **unless they are also high on other things**
(e.g., cumulative burdens and/or vulnerabilities)

1. More influential indicators

After scoring and classifying communities as DACs using the approach you've seen, we looked at how strongly each indicator is correlated with the DAC classification

High influence (and high correlation with scores)	Moderate influence	Low influence	Weak influence (or weak correlation with scores)
Pct income <100% FPL	Industrial/manufacturing zones	Pct without insurance	Coastal flooding projections
Pct income <80% AMI	Unemployment Rate	Pct Disabled	Inland flooding projections
Pct Latino/a	Truck traffic density	Heat projections (>90 degree F)	Proximity to oil storage
Pct Black	Vehicle traffic density	PM 2.5 exposure	Proximity to power generation
Asthma ED rates	Regulated Management Plan Sites	Benzene exposure	Proximity to scrap metal processing
COPD ED rates	Pct without Internet	Rent as % of Income	Housing vacancy rate
Renters	Wastewater exposure	Homes built before 1960	Prox. to municipal waste
Pct no car	Nonvegetative cover	Myocardial hospitalization	Prox. to landfills
Premature deaths	English proficiency	Prox.to remediation sites	Manufactured/mobile homes
Single-parent households	Redlining score	Utility land use (zooming)	Pct agricultural land
Pct Less than Bachelor's Degree			Driving time to hospital
			Pct over age 65

Strong influence means these are very strong drivers of the scores.

While this may be good news for some indicators, there may also be wiggle room to remove collinear variables and make room for others.

No and low influence means that tracts scoring high on these characteristics won't get picked up unless they are also high on other things

Adjustments made after Interim Scenario Testing

Environmental Burdens and Climate Risks:

- Increased factor weight on Climate Risk
- Increased factor weight on Land use and Facilities since there are more indicators within it, and possibly specific EJ concerns
- Moved historical redlining score to race/ethnicity
- Removed utility/waste related land use since it was contributing little and not needed after addition of specific facilities

Population Characteristics and Health Vulnerabilities:

- Separated income and race/ethnicity into separate factors, and moved Redlining into race/ethnicity
- Within factors: Increased weights on two income metrics, Pct Black and Pct Latino/a
- Removed Pct with No Vehicle (correlated with renters)

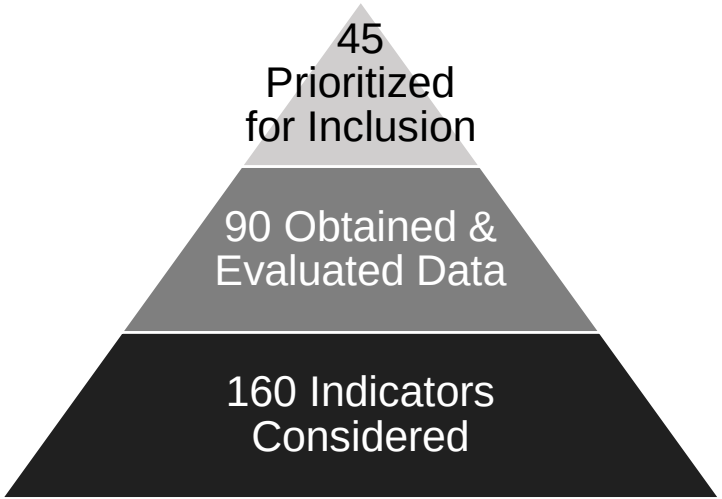
These adjustments were made prior to the August 26 CJWG and integrated into the August 26 scenario (as well as new scenarios in this packet)

Appendix 2: Review of Approach

Inclusion Considerations

Inclusion decisions consider:

- Data coverage & granularity
- Data quality (e.g., measurement or sampling error)
- Modeled vs. directly-collected or measured data
- Correlations
- Technical guidance (e.g., DEC, DOH, DOS)



So far, we obtained & evaluated data for 90+ indicators (a) on their own, and (b) in combination

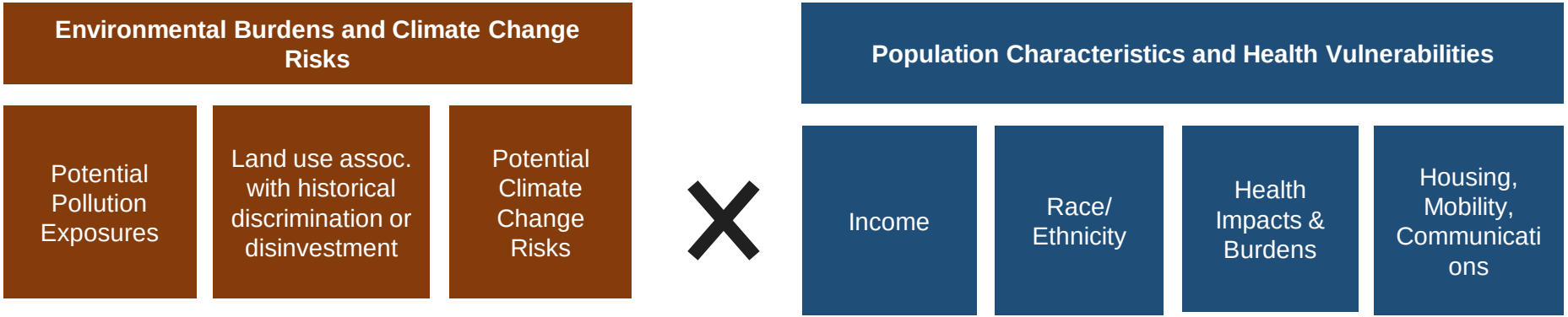
Annual Update Process

Document what CJWG and staff team want to improve (future data collection or advanced analysis)

Additional data needs may emerge from public comment – Save time/budget to address

CJWG can recommend annual process to review and improve indicators *(← what do you recommend?)*

Indicator Framework Names



Environmental & Climate

Generally "place-based" characteristics or conditions

People & Health

Generally "people" characteristics or conditions

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Environmental Burdens and Climate Change Risks: List for September

Potential Pollution Exposures

- Vehicle traffic density (candidate for removal if needed)
- Diesel truck and bus traffic
- Particulate Matter (PM2.5)
- Benzene concentration
- Wastewater discharge

Land use and facilities associated with historical discrimination or disinvestment

- Remediation Sites (e.g., NPL Superfund or State Superfund/Class II sites)
- Regulated Management Plan (chemical) sites
- Major oil storage facilities (incl. airports)
- Power generation facilities
- Active landfills
- Municipal waste combustors
- Scrap metal processors
- Industrial/manufacturing/mining land use (zoning)
- Housing vacancy rate

Potential Climate Change Risks

- Extreme heat projections (>90° days in 2050)
- Flooding in coastal and tidally influenced areas (projected)
- Flooding in inland areas (projected)
- Low vegetative cover
- Agricultural land
- Driving time to hospitals or urgent/critical care

Population Characteristics and Vulnerabilities: Suggestions to Streamline

Income	Race & Ethnicity	Health Impacts & Sensitivities	Housing, Mobility, Communications
• Pct <80% Area Median Income • Pct <100% of Federal Poverty Line • Pct without Bachelor's Degree • Unemployment rate • Pct Single-parent households	• Historical redlining score • Pct Latino/a or Hispanic • Pct Black or African American • Pct Asian • Limited English Proficiency	• Asthma ED visits • COPD ED visits • Heart attack (MI) hospitalization • Premature Deaths • Low Birthweight • Pct without Health Insurance • Pct with Disabilities • Pct Adults age 65+	• Pct Renter-Occupied Homes • Housing cost burden (rental costs) • Energy Poverty / Cost Burden • Manufactured homes • Homes built before 1960 • Pct without Internet (home or cellular)
Within this factor, both income metrics have 2x weight	Within this factor, Pct Latino/a and Pct Black have 2x weight		

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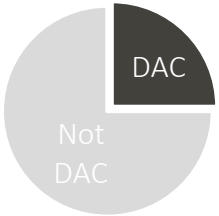
Review: Combining Data

Group Indicators into Factors

Combine Factors into Components

Calculate Statewide & Regional Scores

Designate DACs based on their relative score



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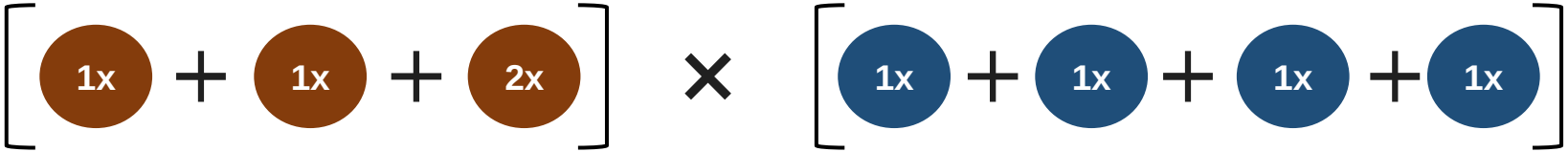
Combining Factor Scores

Similar to California's CalEnviroScreen approach, we multiply Environmental/Climate Burdens by Population/Health to reflect the "effect modifier" relationship wherein sociodemographic characteristics and/or health sensitivities may exacerbate or mitigate place-based burdens/risks:

Factor scores are weighted and added before multiplying:



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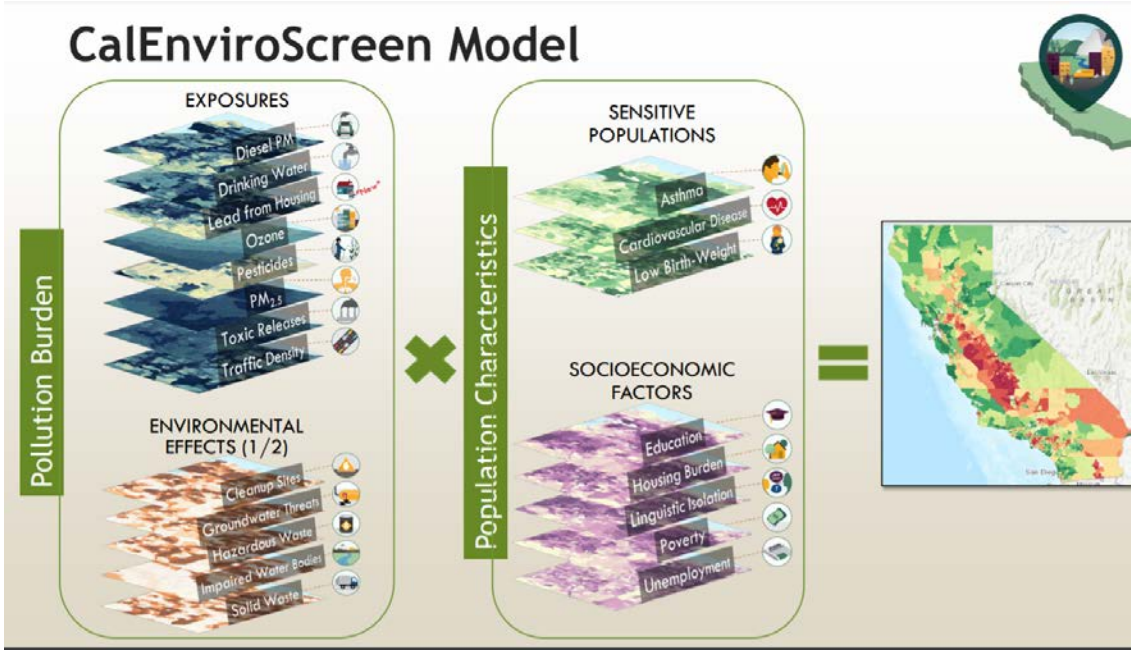
Note: Since Burdens and Vulnerabilities are multiplied, they have equal weight, regardless of how you weight things within them.

Multiply to represent that Vulnerabilities serve as Effect Modifiers to Burdens



https://oehha.ca.gov/media/downloads/calenviroscreen/presentation/calenviroscreen40webinarslidesd12021.pdf

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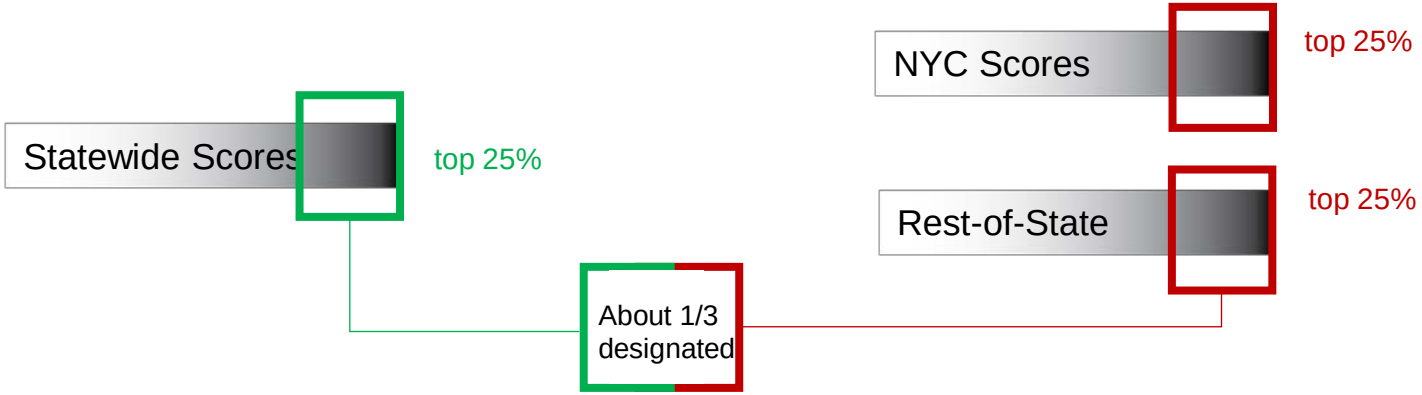
Designate tracts in top ##% of statewide and regional scores

Statewide Score
How each community ranks (on all of the data) within the **entire** state

Regional Scores
How each community ranks (on all of the data) in NYC and Rest-of-State separately



Designate communities that score in either top 25% statewide OR regionally

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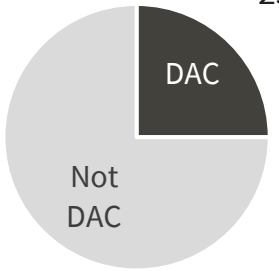
Future: Include low-population areas with high burdens

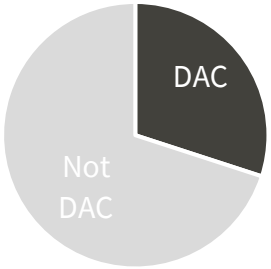
Critical Question for CJWG: Share of DACs

In general, what share of communities (census tracts) should be designated as DACs?

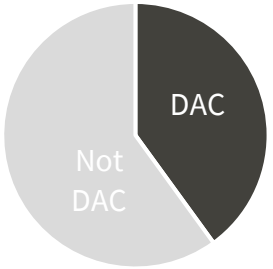
25%



30%

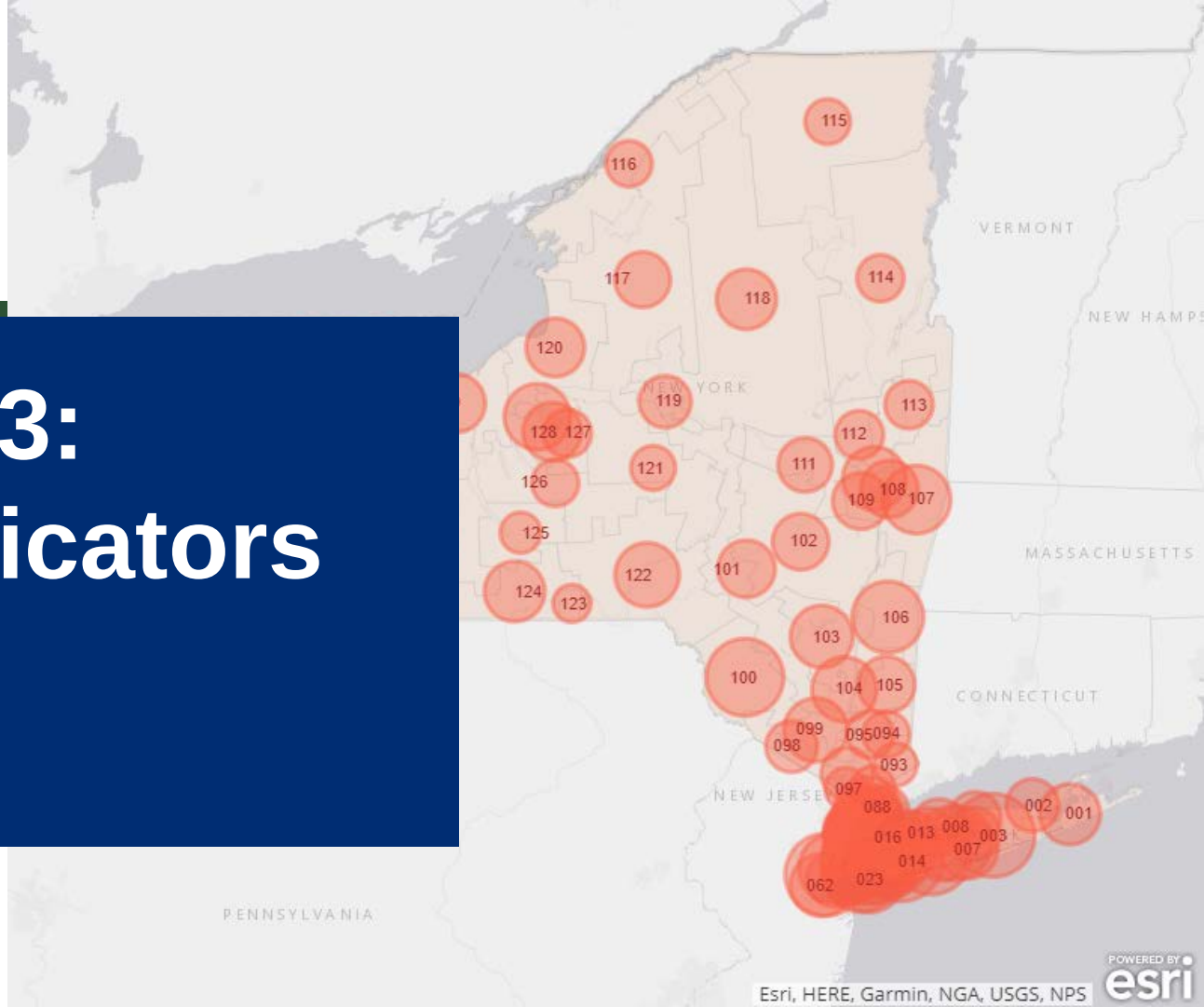


40%



We've discussed the idea of "leave no DAC behind", but we need to operationalize this as the final % will be an arbitrary number.

Appendix 3: Health Indicators



Inclusion Considerations

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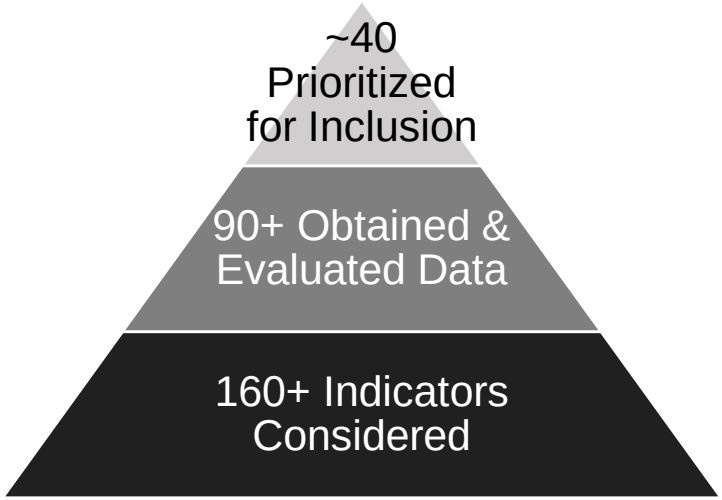


So far, we obtained & evaluated data for 90+ indicators (a) on their own, and (b) in combination

Still waiting for several health and environmental indicators that require technical and GIS analysis

Considerations for Health Indicators

Link to Environmental Factors

- Environmental (geographic) component of health outcomes
  - For chronic conditions, exposures may have occurred many years prior and/or in places other than where the health outcome is recorded
  - Environmental factors exacerbate or trigger acute events for some conditions more than others (e.g., asthma, MI)

Data Availability and Granularity

- NYSDOH only “sees” a health outcome when it appears in a dataset - Births, deaths, ED visits, hospitalizations, surveys, registries
- Need higher event frequency for stable/reliable rates and ability to share data (confidentiality)
- Data availability for small geographies in time for Draft DAC Scenarios

Potential Health Indicators

Included Indicators

- Asthma ED visits
- COPD ED visits
- Heart attack (MI) hospitalization
- Premature Deaths
- Low Birthweight
- Pct without Health Insurance
- Pct with Disabilities
- Pct Adults age 65+
- Distance to ED/critical/urgent care

Considered but Not Included

- COVID-19
- Heat stress
- Cancer
- Diabetes
- Pre-term births
- Mental Health
- Childhood Lead Exposure

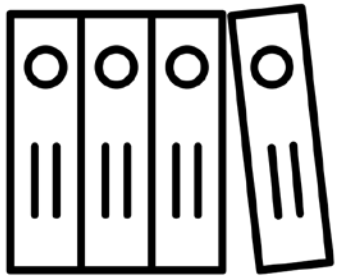
Potential Indicator	Rationale for Inclusion
Asthma ED visits	Strong scientific literature associating asthma with environmental exposures. Managing asthma is linked with socioeconomic status and healthcare access.
COPD ED visits	COPD is considered a sub-set of respiratory disease, associated with air toxics as well as personal behaviors. We considered de-prioritizing though COPD outcomes are influenced by access to healthcare.
Heart attack (MI) hospitalization	Cardiovascular disease in general (not MI hospitalization specifically) increasingly associated with air pollution and criteria pollutants. However, MI hospitalization data is/was readily-available, though less stable at the sub-county level.
Low Birthweight	Broadly represents maternal health, which is a factor of environmental, social, and structural policies. Data is available at the sub-county level.
Premature Deaths	Broadly represents deaths due to cancer, diabetes, heart disease, lung disease, accidents, homicides, etc., to capture systemic disadvantage. Could also be indicator of avoided deaths resulting from environmental/health policy changes
Pct with Disabilities	Represents susceptibility to power outages and emergency situations due to extreme weather events
Pct without Health Insurance	Represents access to screening, ability to manage conditions, affordable car. May indicate structural and socioeconomic disadvantage.
Pct Adults age 65+	Represents susceptibility to power outages and emergency situations due to extreme weather events.

Indicator	Rationale for Exclusion	Potential Correlates (among included indicators)
COVID-19	Data not yet available; cases under active investigation; testing rates not equivalent across the state and through course of the pandemic	Socioeconomic status (SES), race/ethnicity
Heat Stress	ED visits or hospitalization either unavailable or unreliable at sub-county level. Heat deaths too small to report at sub-county level.	High temps, vegetative cover & road density (urban areas), housing quality, health vulnerabilities
Cancer	Cancers is multifactorial and represent a range of diseases. Some cancers are more vs. less environmentally or spatially-related.	Health insurance, SES (for certain types)
Diabetes	Hard to capture in NYSDOH datasets that contain ED visits & hospitalization. Clinic/pharmacy data would better capture disease. Also, diabetes may have a weaker environmental component.	Premature deaths, sociodemographic correlates and health insurance
Pre-term births	Generally captured by low birthweight	Low birthweight births
Mental Health	Mental health not well-captured in DOH data because they have ED visits & hospitalization; would only see co-occurring ICD-9 codes. Clinic/pharmacy data would better capture disease.	
Childhood Lead Exposure	Exposure data is small/unreliable at sub-county level.	Age of home, renters & rental costs, income

Other indicators may capture risk factors for health outcomes

- Environmental exposures
- Potentially (or formerly) hazardous facilities
- Housing conditions
- Socioeconomic indicators
- Health insurance
- Language barriers

Indicator Limitations



Documentation (for public comment) will discuss:

- Indicators/data we **considered** but did not pursue, and why
- Data limitations, including Census (e.g., not specific enough to race/ethnicity), public health data (e.g., limited data @ sub-county level), and more
- Recommendations for future/additional community-level data (e.g., migration)
- Potential for periodic indicator review/updates

Legislation allows for continuous improvement

We are cataloging recommendations for data to gather and consider in the future.