MI POWER GRID

Making the Most of Michigan's Energy Future

MIRPP & Filing Requirements
Environmental Considerations Subgroup

March 23th, 2022

MPSC

Michigan Public Service Commission

Workgroup Instructions

1. This meeting is being recorded.
2. Please be sure to mute your lines.
3. There will be opportunities for discussion throughout each presentation. Please use the raised hand function and the presenter will call on you when it is your turn to speak or type your comment in the chat.
4. Please be respectful and courteous when others are speaking.
5. We will be requesting comments after all meetings. All comments will be posted to the webpage.
6. The presentations for all meetings are posted to the Advanced Planning webpage.
7. If you are having technical difficulty, please contact Merideth Hadala at Hadalam@michigan.gov.

Environmental Subgroup Meetings

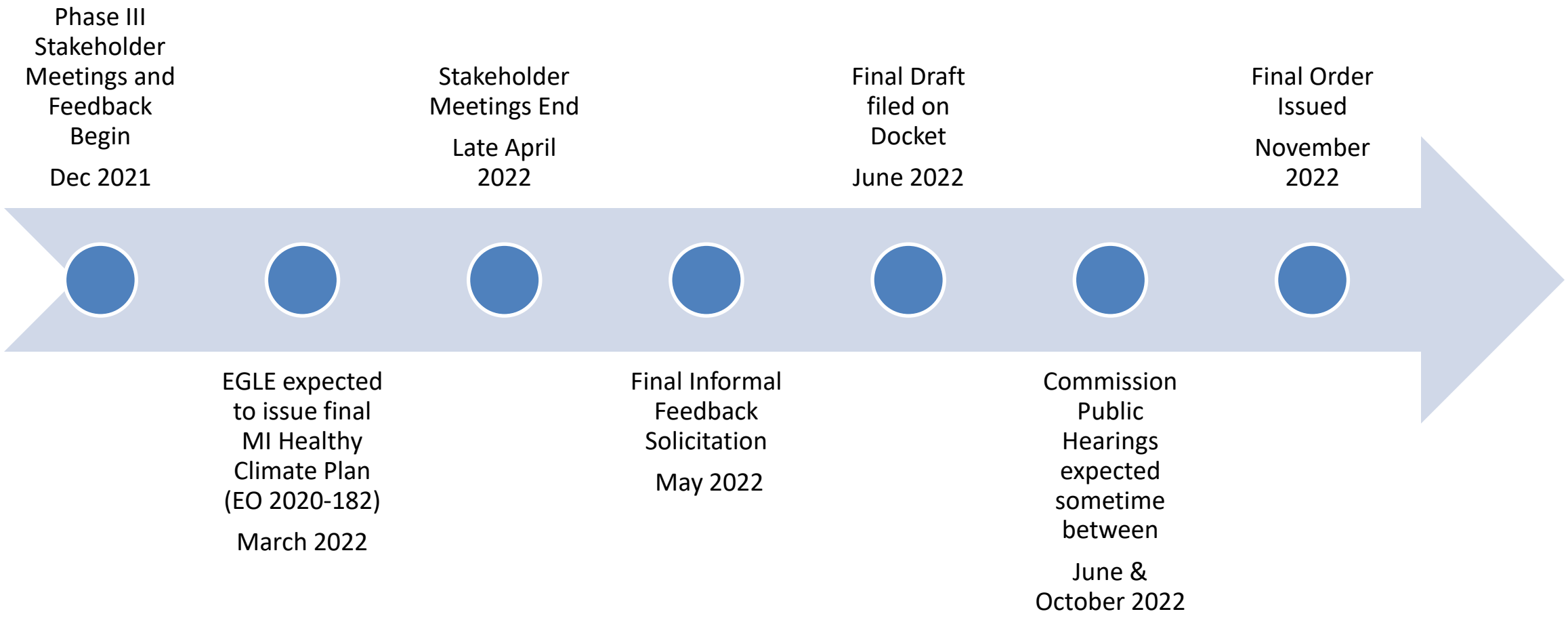
- Meeting #1 March 23rd
  - Revised Environmental Considerations
  - Dispersion Modeling Discussion
  - Environmental Justice Discussion
- Meeting #2 April 14th

MI POWER GRID

Making the Most of Michigan's Energy Future

Agenda Items		
2:00 p.m.	Introduction	Naomi Simpson (MPSC)
2:05 p.m.	Revised Environmental Considerations	Breanna Bukowski (EGLE) Keisha Williams (EGLE)
2:30 p.m.	Dispersion Modeling Discussion	Stephanie Hengesbach (EGLE)
2:45 p.m.	Environmental Justice Discussion	Regina Strong (EGLE)
3:30 p.m.	Adjourn	

Phase III Timeline



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

REVISED ENVIRONMENTAL CONSIDERATIONS

Air Quality Division

Breanna Bukowski

Environmental Quality Analyst

Keisha Williams

Toxicologist

Revised Environmental Considerations

Suggested additions/modifications to utility filing:

Scope of Portfolio Build Plan/Scenarios Evaluated (herein referred to collectively as portfolios):

- Portfolio 1: Previously approved portfolio (status quo; approved PCA) run in the MIRPP Business-As-Usual (BAU) scenario (optimized through the current study period)
- Portfolio 2: Utility proposed course of action (PCA) portfolio run in MIRPP BAU scenario
- Portfolio 3: Optimized portfolio in MIRPP BAU scenario
- Portfolio 4: Optimized portfolio in MIRPP BAU scenario with high load sensitivity
- Portfolio 5: Reasonable Alternatives to the PCA presented by the utility in MIRPP BAU scenario

Revised Environmental Considerations

Suggested additions/modifications to utility filing con't.:

1a. The utility will provide the following facility/unit level data and total annual fleet data, in an Excel spreadsheet(s) expressed in total tons to EGLE for emissions of the following:

- sulfur dioxide (SO_2)
- nitrogen oxides (NO_x)
- carbon monoxide (CO)
- particulate matter (PM)
- lead (Pb)
- mercury (Hg)
- volatile organic carbon (VOC)
- carbon dioxide (CO_2)

These data will be presented as raw numbers/units and as the aggregate change comparing the three portfolios - #1, #2 and #5. The methodology used to determine emissions from the respective regional transmission organization purchases will be explained. The utility will propose a sample template of what would be provided in the IRP filing to EGLE for agreement 30 days before the filing.

Revised Environmental Considerations

Suggested additions/modifications to utility filing con't.:

1b. Analyze all listed portfolios detailed above to identify and quantitatively assess the potential impacts to **vulnerable communities** (as defined collaboratively with EGLE). This quantitative assessment should address air emissions and early retirement of fossil fuel-fired facilities. Explain how these considerations were taken into account in the utility's decision.

Revised Environmental Considerations

Suggested additions/modifications to utility filing con't.:

2. The utility will perform an Environmental Justice Screening using the EPA Environmental Justice Screening and Mapping Tool (EJSCREEN), or the Michigan Environmental Justice Screening Tool (MiEJScreen). The screening will include vulnerable communities within a 3-mile radius of each facility for all facilities. Vulnerable communities will be defined collaboratively with EGLE based on the screening tools' composite Environmental Justice index/score. The portfolios referenced in the scope above should be analyzed to qualitatively assess the potential impacts including utility proposed early retirements of fossil fuel-fired facilities on vulnerable communities. The analysis should address water quality, waste disposal, and expected changes in land use for new or retiring resources.

Revised Environmental Considerations

Suggested additions/modifications to utility filing con't.:

3. To determine health impact estimates for $PM_{2.5}$ emissions, the utility will use the environmental Benefits Mapping and Analysis Program – Community Edition (BenMAP-CE), the Co-Benefits Risk Assessment (COBRA) Health Impacts Screening and Mapping Tool, or a similar analytical tool with mapping features and spatial resolution down to at least the county level. This air emissions data analysis will be performed to provide health impact analysis to assess:
   - Overall fleetwide health impacts of utility, proposed early retirement of fossil fuel-fired facilities, and renewable energy adoption. Results, including impacts and associated costs, will be presented for portfolios #1 and #2.
   - Impacts on vulnerable communities as defined collaboratively with EGLE. Results, including impacts and associated costs, will be presented for all five listed portfolios.

Revised Environmental Considerations

Suggested additions/modifications to utility filing con't.:

4. If a decrease in $PM_{2.5}$ emissions is not demonstrated at all electric generating unit(s) within a 6-mile radius of an identified vulnerable community, including any new proposed units that could reasonably be expected to locate within the 6-mile radius, conduct dispersion modeling for $PM_{2.5}$ including all electric generating unit(s) of the identified vulnerable community. The current emissions should be used to establish a baseline modeling demonstration by which to compare the future impacts of portfolio #2. Any dispersion modeling analysis conducted pursuant to this item doesn't necessarily need to be a refined analysis. A screening analysis employing reasonable assumptions is acceptable. How refined the analysis is, is at the discretion of the utility. The goal of this analysis is to assess how the ambient concentrations of $PM_{2.5}$ in vulnerable communities may be affected and to encourage an assessment of ambient impacts in the siting of any new units.

Revised Environmental Considerations

Suggested additions/modifications to utility filing con't.:

5. For resources located within the nonattainment areas in the electric utility service territory, identify and assess their impact to the nonattainment status for the portfolio #2 listed above as compared to portfolio #1, and qualitatively support in testimony. The assessment should consider all nonattainment pollutants (i.e., SO_2 and ozone), as well as their precursors (i.e., NOx and VOCs).
6. A narrative discussion of the quantitative and qualitative health and environmental impacts based on the analysis above, methodologies, data sources, and related observations. Explain how these considerations were taken into account in the utility's decision.

Questions

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

DISPERSION MODELING DISCUSSION

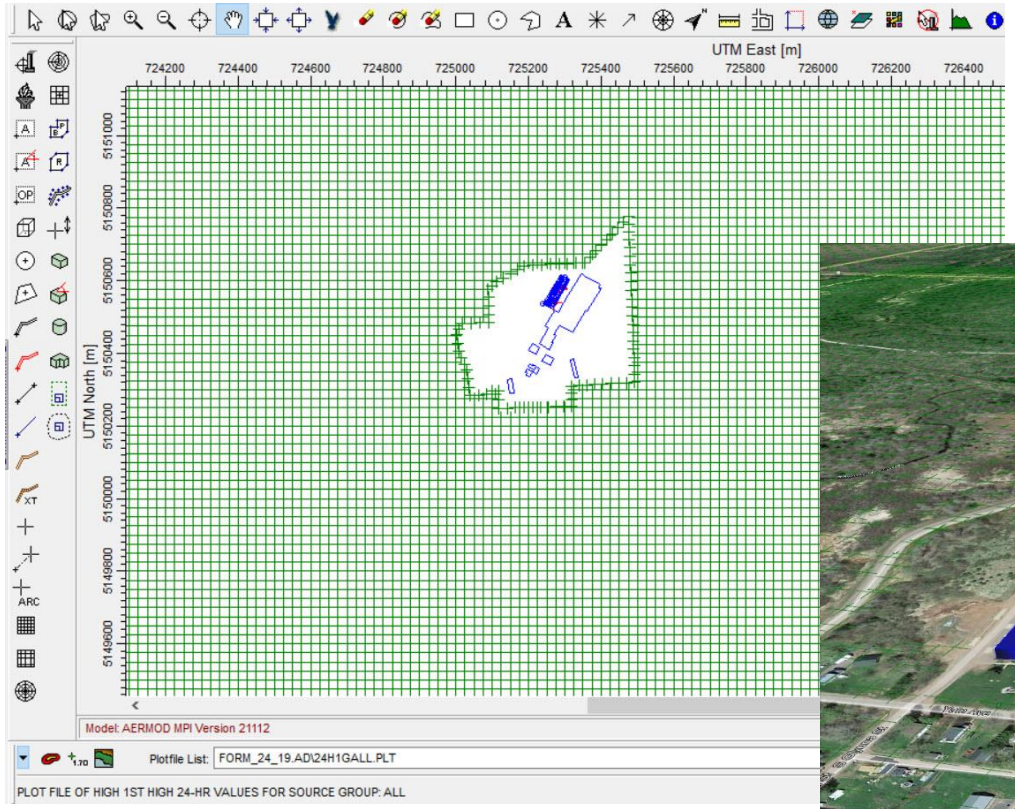
Air Quality Division

Stephanie Hengesbach

Meteorologist

AERMOD Dispersion Modeling

- EPA recommended air dispersion model
- AQD uses a third-party software called Lakes Environmental – AERMOD View



Basic Modeling Elements:

Stack Parameters

Meteorology

Building Wake Effects

Terrain Features

Stack Parameters

- Emission Rate
- Height
- Temperature

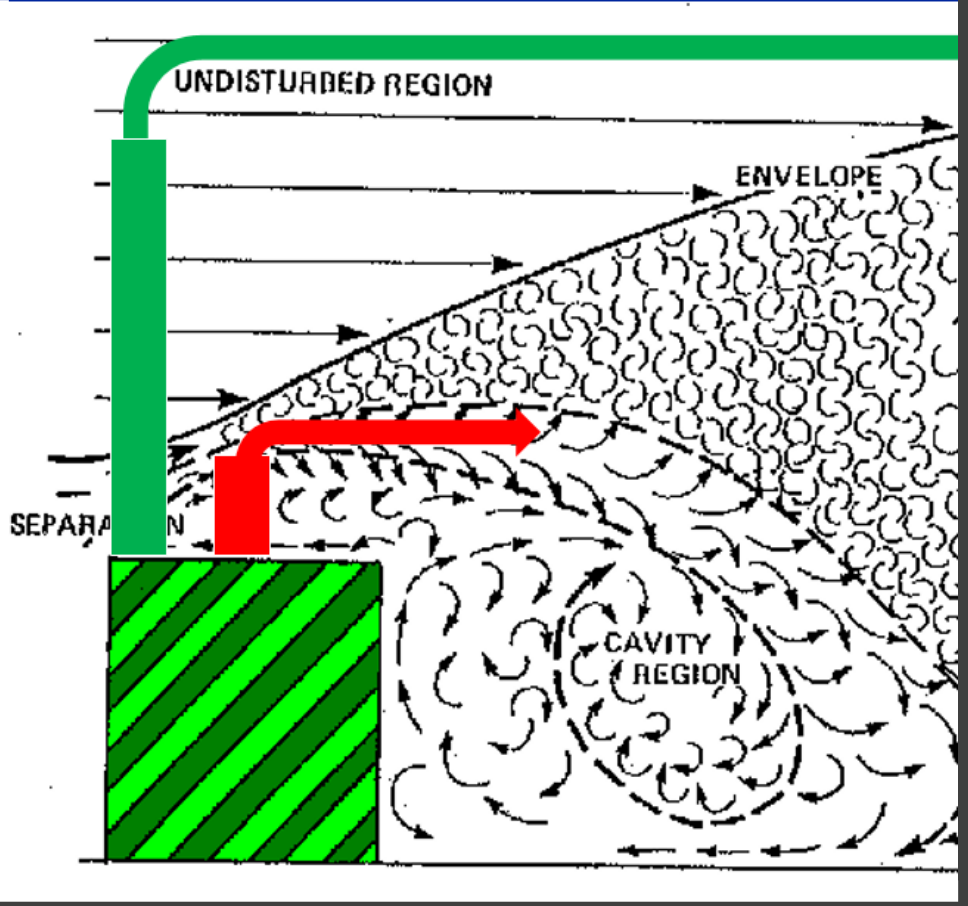
- Stack Diameter
- Flow Rate
- Stack Obstructions

Other examples of emission points…

Flares

Fugitives from Piles

Fugitives from Truck Traffic



Building Wake Effect

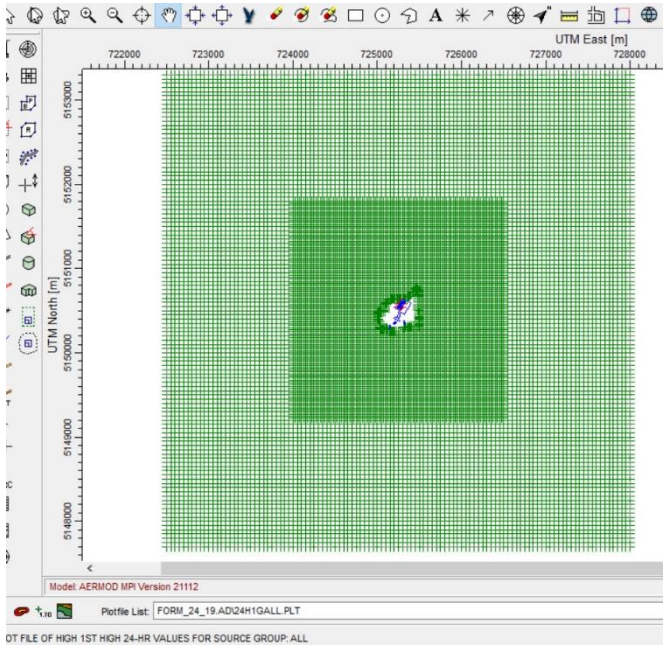
Meteorology

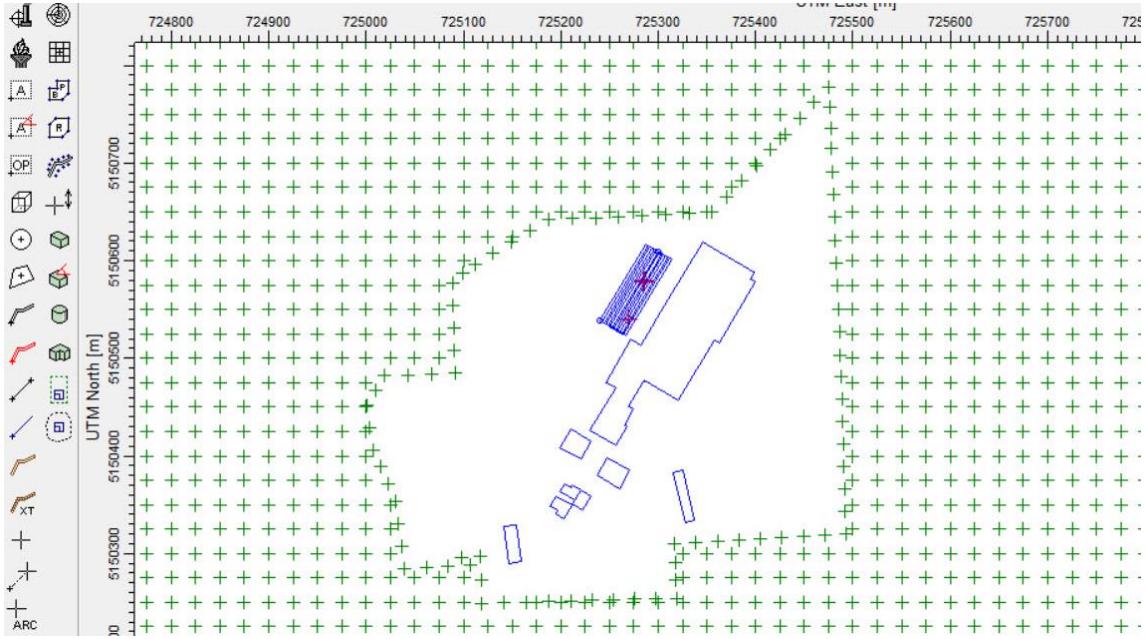
- Wind Speed
- Wind Direction
- Temperature
- Precipitation
- Upper Air Data
- Surface Features
- Representativeness

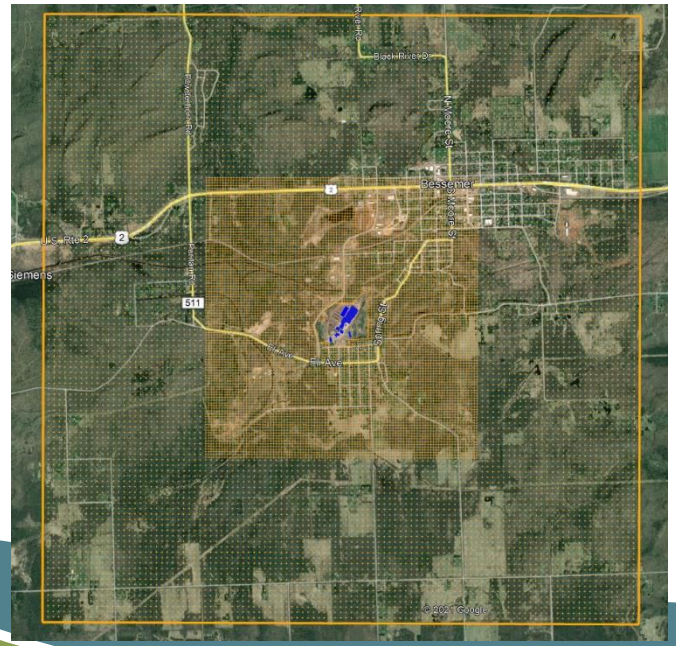
Terrain Features

Ambient Air: Where Do You Model?

"the portion of the atmosphere, external to buildings, to which the public has general access"

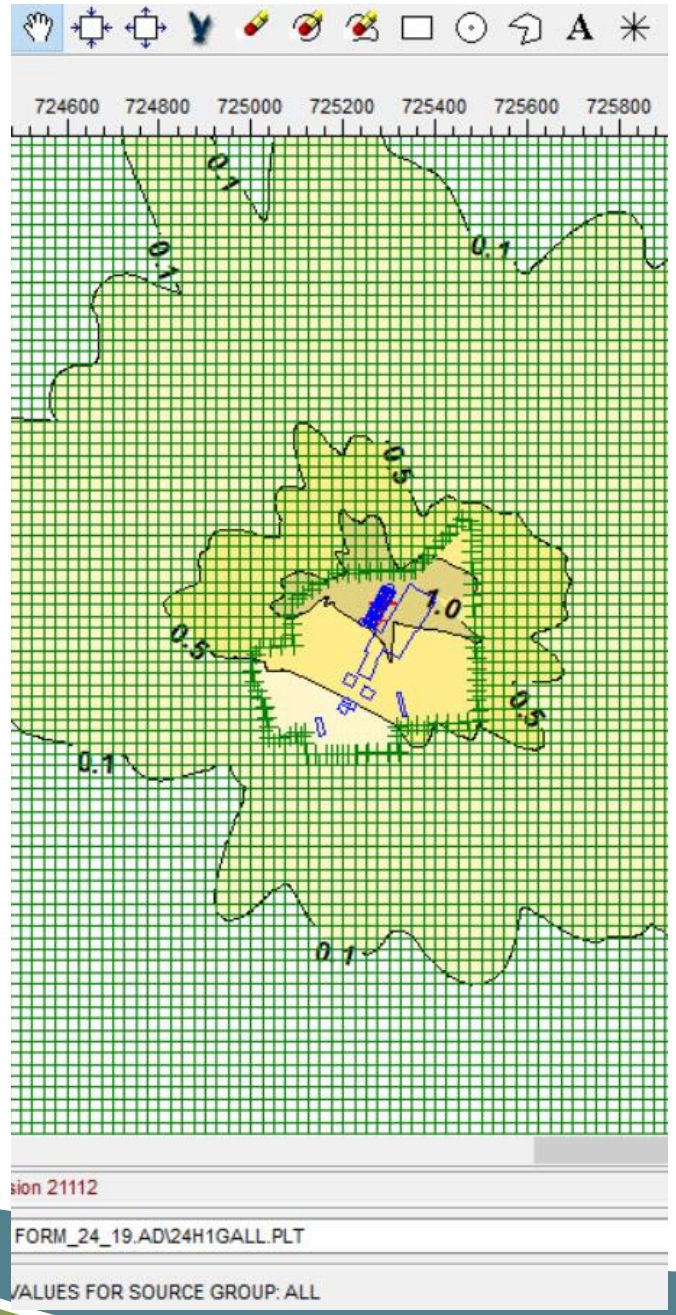


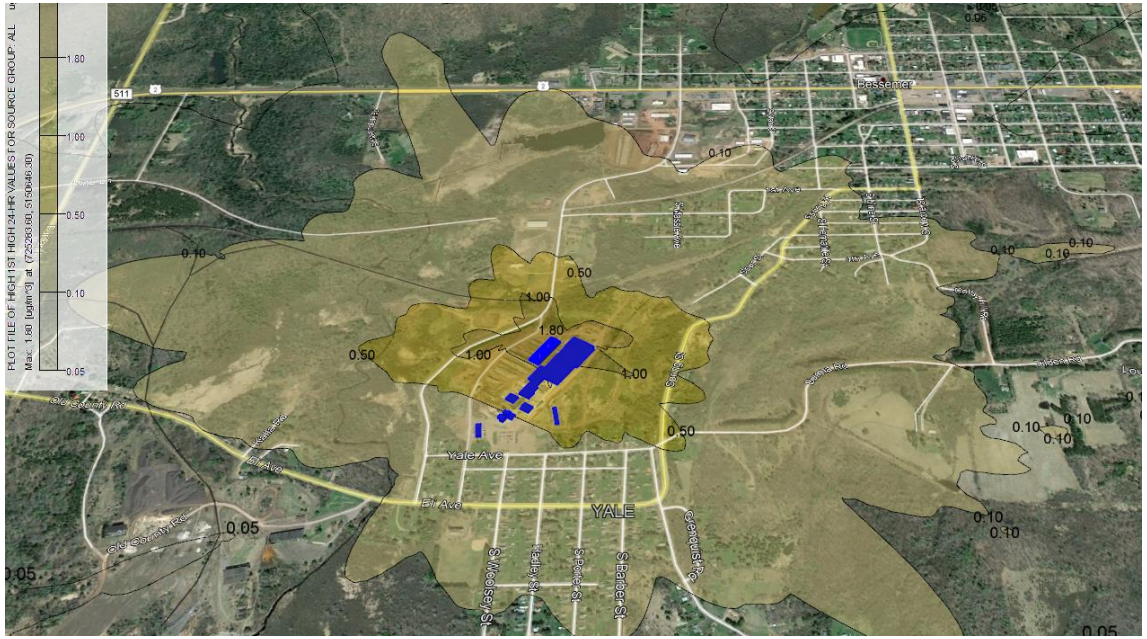




Receptor (Virtual Monitors) Spacing

Area and Spacing Sufficient to Identify the Location and Magnitude of the Highest Ambient Impact





Predicting Magnitude & Location

Questions?

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

ENVIRONMENTAL JUSTICE DISCUSSION

Office of Environmental Justice Public Advocate

Regina Strong

Environmental Justice Public Advocate

MiEJScreen Draft

- Launched last week for 60-day comment period
- Available for review at www.Michigan.gov/environmentaljustice
- Developed over a 2+ year process
- Developed by the Office of the Environmental Justice Public Advocate and the Interagency Environmental Justice Response Team – Data and Research Work Group

EGLE

Background

Environmental Justice Work Group Report (March 2018) Recommendation:

"Develop an environmental justice screening tool in Michigan and include cumulative impacts in the decision-making processes"

- Assessing the State of Environmental Justice in Michigan (Grier, Mayor, Zeuner) May 2019
- Environmental Justice Tools for the 21st Century (Blondell, Kobayashi, Redden, Zrzavy) May 2020
- Identified as a priority of the Interagency Environmental Justice Response Team and Office of Environmental Justice Public Advocate
- Data and Research Workgroup (first meeting December 2019)

Purpose

- Develop a Michigan-specific mapping and screening tool
- Assess cumulative factors (environmental, socioeconomic, health) that communities in Michigan may face
- Help inform decisions, allocate resources, and address community specific issues/concerns
- Able to be used by multiple stakeholders

REVIEW EXISTING TOOLS/METHODOLOGY

COLLABORATION FROM VARIOUS STATE DEPARTMENTS

STAKEHOLDER INVOLVEMENT

Methodology

- Based on California's CalEnviroScreen
- Spatial analysis of relative burdens in Michigan communities at the census tract level
- Uses both national and statewide indicators
- Uses percentiles to assign scores for each indicator
- Uses a scoring system in which the percentiles are averaged for the set of indicators in each of the four components
- Combines the component scores to produce cumulative score for a given place relative to other places in the state

	Environmental Exposure	Environmental Effects	Sensitive Populations	Socioeconomic Factor
Categories	NATA Air Toxics Cancer Risk	Proximity to Cleanup Sites	Asthma	Low Income Population
	NATA Respiratory Hazard Index	Proximity to Hazardous Waste Facilities	Cardiovascular Disease	Black, Indigenous, People of Color Population
	NATA Diesel Particulate Matter	Impaired Water Bodies	Low Birth Weight Infants	Educational Attainment
	Particulate Matter ($PM_{2.5}$)	Proximity to Solid waste Sites and Facilities	Blood Lead Level	Linguistic Isolation
	Ozone	Lead Paint Indicator	Life Expectancy	Population Under Age 5
	Traffic Density	Proximity to RMP Sites		Population Over Age 64
		Wastewater Discharge Indicator		Unemployment
				Housing Burden

Indicators	**Environmental Conditions** (Average percentile of Environmental Exposure indicators + 0.5 x average percentile of Environmental Effects indicators) / 2	**Population Characteristics** (Average percentile of Sensitive Population indicators x average percentile of Socioeconomic Factor indicators) / 2
Score	**Final Composite Score = Environmental Conditions score x Population Characteristics score** **MiEJScreen Score**	

Proposed Terms for Higher Percentile Communities

- Vulnerable Communities
- Overburdened Communities
- Vulnerable Overburdened Communities
- Disadvantaged Communities
- Communities of Concern
- Other

Percentile Levels

- The MiEJScreen provides an overall score in a percentile for census tracks.
- The higher the percentile, the more factors a community faces
- Other tools have used the benchmark of 75% plus to indicate communities of concern/vulnerable communities
- Consideration has been given to using the benchmark of 65%
- What are the key considerations that help determine the optimal percentile to trigger action by utilities in an IRP?

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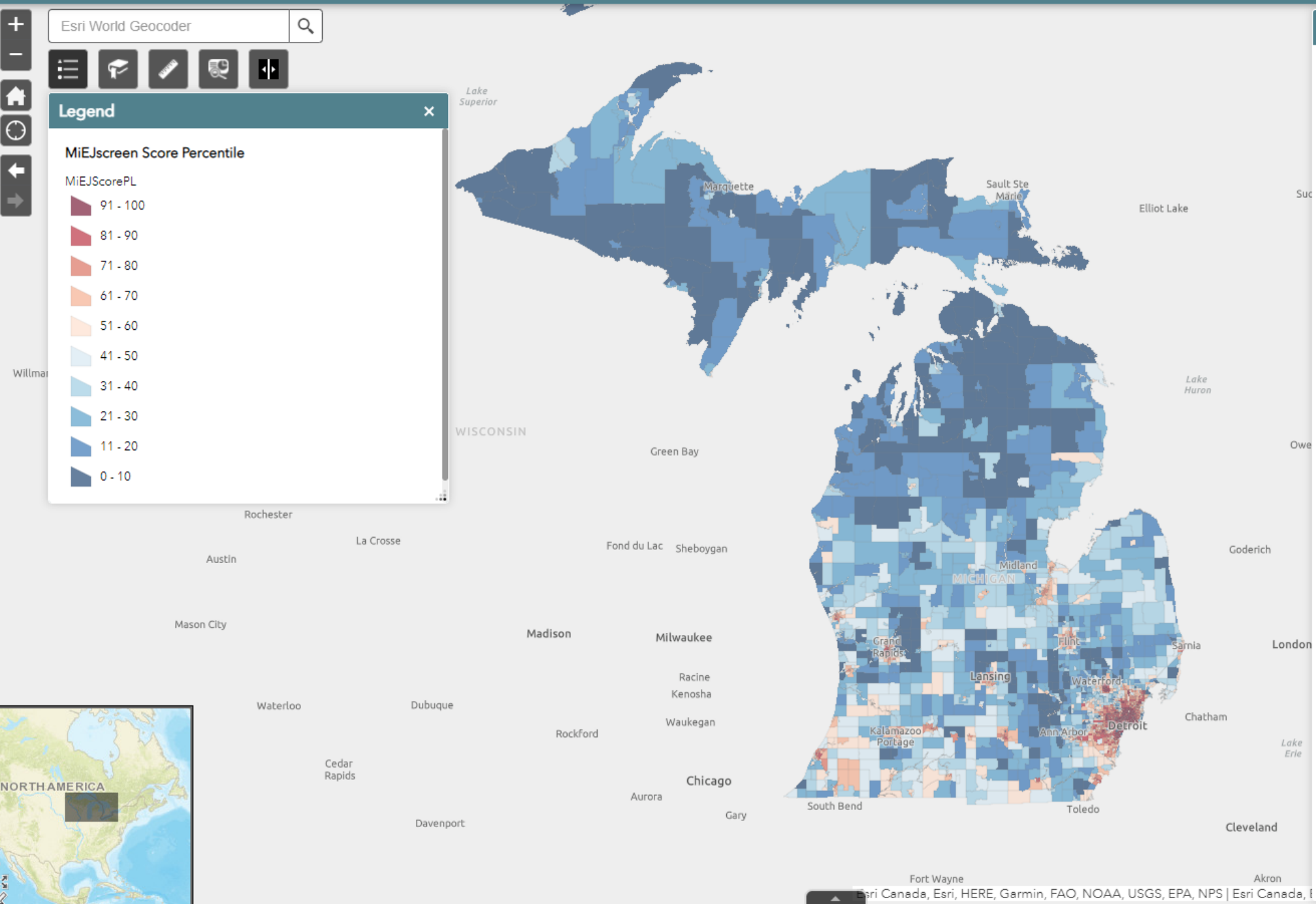

Layer List

Layers

- [x] MiEJscreen Score Percentile
- [ ] ----Environmental Conditions Percentile
- [ ] ----Population Characteristics Score Percentile
- [ ] 1) Environmental Conditions: Exposure
- [ ] ----a) NATA Air Toxics Cancer Risks
- [ ] ----b) NATA Respiratory Hazard Index
- [ ] ----c) NATA Diesel Particulate Matter
- [ ] ----d) Particulate Matter 2.5 (PM2.5)
- [ ] ----e) Ozone
- [ ] ----f) Traffic Proximity and Volume
- [ ] 2) Environmental Conditions: Environmental Effects
- [ ] ----a) Cleanup Sites Proximity
- [ ] ----b) Treatment and Disposal Facilities Proximity
- [ ] ----c) Impaired Waters
- [ ] ----d) Solid Waste Proximity
- [ ] ----e) Lead Paint Indicator
- [ ] ----f) RMP Proximity
- [ ] ----g) Wastewater Discharge Indicator
- [ ] 3) Population Characteristics: Sensitive Populations
- [ ] ----a) Asthma Emergency Room Discharges

Esri Canada, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | Esri Canada,

Context Layers

Michigan PFAS Sites	Ozone/SO2 Non-Attainment Areas	Schools, hospitals, places of worship
Roads and railroads	Boundaries (zip code, cities, counties, tribal areas, etc.)	Redlining maps
Sites reporting to EPA	Impaired water boundaries	Population density
Public housing	Prisons	EJ Grants

Next Steps

- Draft version available for public comment through May 14
- Review and incorporate public comment
- Final version available 2022
- Update tool as new data and methodologies are developed

Feedback Request

Please provide feedback about the approach to environmental considerations in IRP discussed today.

We look forward to your written comments in response to EGLE and Staff's feedback request. Your participation is critical.

Please submit responses to the stakeholder feedback comments received to Kayla Gibbs by

April 1th, 2022, 5pm ET.

GibbsK2@Michigan.gov

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Thank You

Upcoming Environmental Justice in IRP Subgroup Meetings

April 14th 3:00 pm – 4:30 pm