Spatial Integration of Tribal Inventories into Regional Photochemical Models

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Background

- Midwest RPO Needs to seamlessly integrate tribal inventories into Photochemical model process.
- Need to recognize the differences and similarities between the tribal inventories and the state inventories.
- New methods must recognize the soverinty of the tribes while keeping inventory continuity.

- Agreement to a set of unique alpha numeric tribal identifiers

- Enhancement of the RPO data exchange protocol to include tribal and alternate jurisdiction codes.

- Agreement on the correct methods for removing state developed inventories from tribal lands when tribal inventories are available.

- Development of a set of spatial surrogates for the nation that include tribal identifiers.

Tribal ID's

- Use the BIA Tribal Codes
- Modified for tribal bands (sub-areas) that intend to build inventories.
- 3 digit code

RPO Data Exchange Protocol

- Protocol will be modified to include "Alternate Jurisdiction Code" (AJC)
- 5 Digit code in RPO Protocol but 3 digits in NIF3.0
- Need the extra digits to cover complex spatial events(vessels,census tracts)

RPO Data Exchange Protocol

- Tribes fill out Country Code "US", FIPS State/County code as "00000" and Tribal code in AJC

- If state and county are used in FIPS field models will think it is seeing a subsection of a county
  - city, pollution control district, zip code, or individual census tracts.

- New CONCEPT Emissions model will need to be modified to include AJC

Spatial Processing

- Activity of Chemical Transport Emissions Models.

- Task is to take emissions from whatever spatial scale they are received in and fit them onto a photochemical modeling grid.
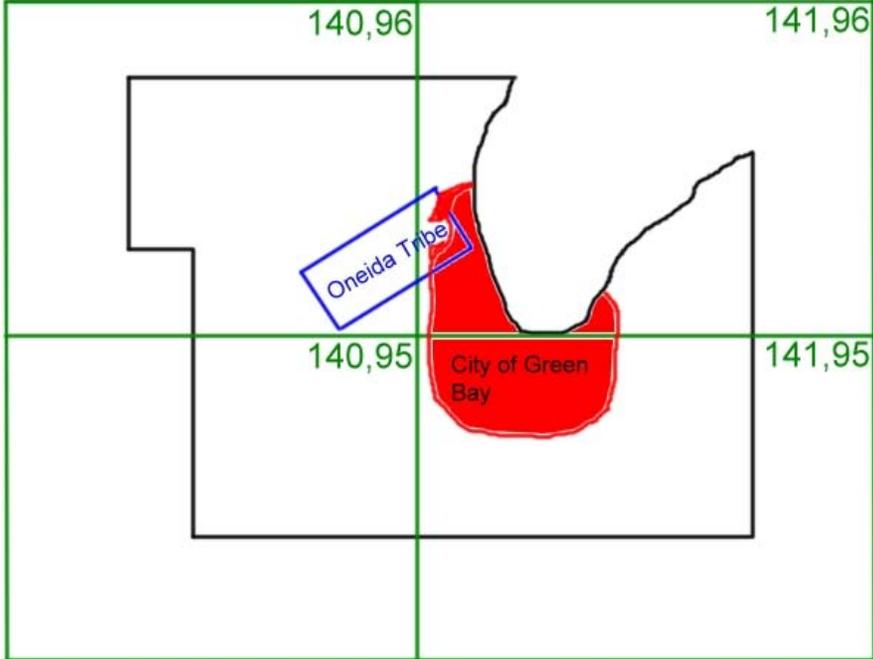
Layer 1 URBANl

MRPO 12km Landuse
l=surf.mrpo.12.ld.pave

July 16,1998 0:00:00
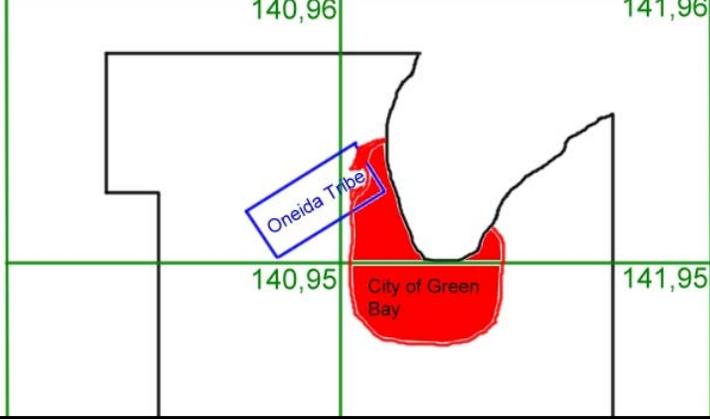Min= 0.000 at (42.63), Max= 1.000 at (48.72)

Problem of Spatial Allocation

- Most States to not "Actively Remove" tribal lands from their inventories.

- If tribal inventories are submitted we need to remove state inventory from tribal lands before we add tribal emissions.

- Reason we do not say that the states "include" tribal lands is that some surrogate data sets may not fully represent tribal lands (vehicle registration, census)

Obs	Country	State	County	Icell	Jcell	Surrogate	Surrogate Ratio
1	US	55	9	140	95	pop	.10
2	US	55	9	140	96	pop	.15
3	US	55	9	141	95	pop	.40
4	US	55	9	141	96	pop	.35

Obs	Country	State	County	Icell	Jcell	Sur.	Sur Ratio	Sur Value	AJ Country ID	AJ State/County	AJ Code
1	US	55	9	140	95	pop	.10	20000			
2a	US	55	9	140	96	pop	.11	22000			
2b	US	55	9	140	96	pop	.04	8000	US	00000	433
3	US	55	9	141	95	pop	.40	80000			
4a	US	55	9	141	96	pop	.33	66000			
4b	US	55	9	141	96	pop	.02	4000	US	00000	433

What Tribes Need to Know

- Use state/county code of 00000
- Match State SCC Code or make sure there are "0" records using state SCC's where you want state emissions removed.
- We have to retain surrogate values because this method can be used for tribal inventories that cross state/county boundaries.
- If a state "Actively Removes" tribal emissions then appropriate flags need to be included on EP or equivalent record.
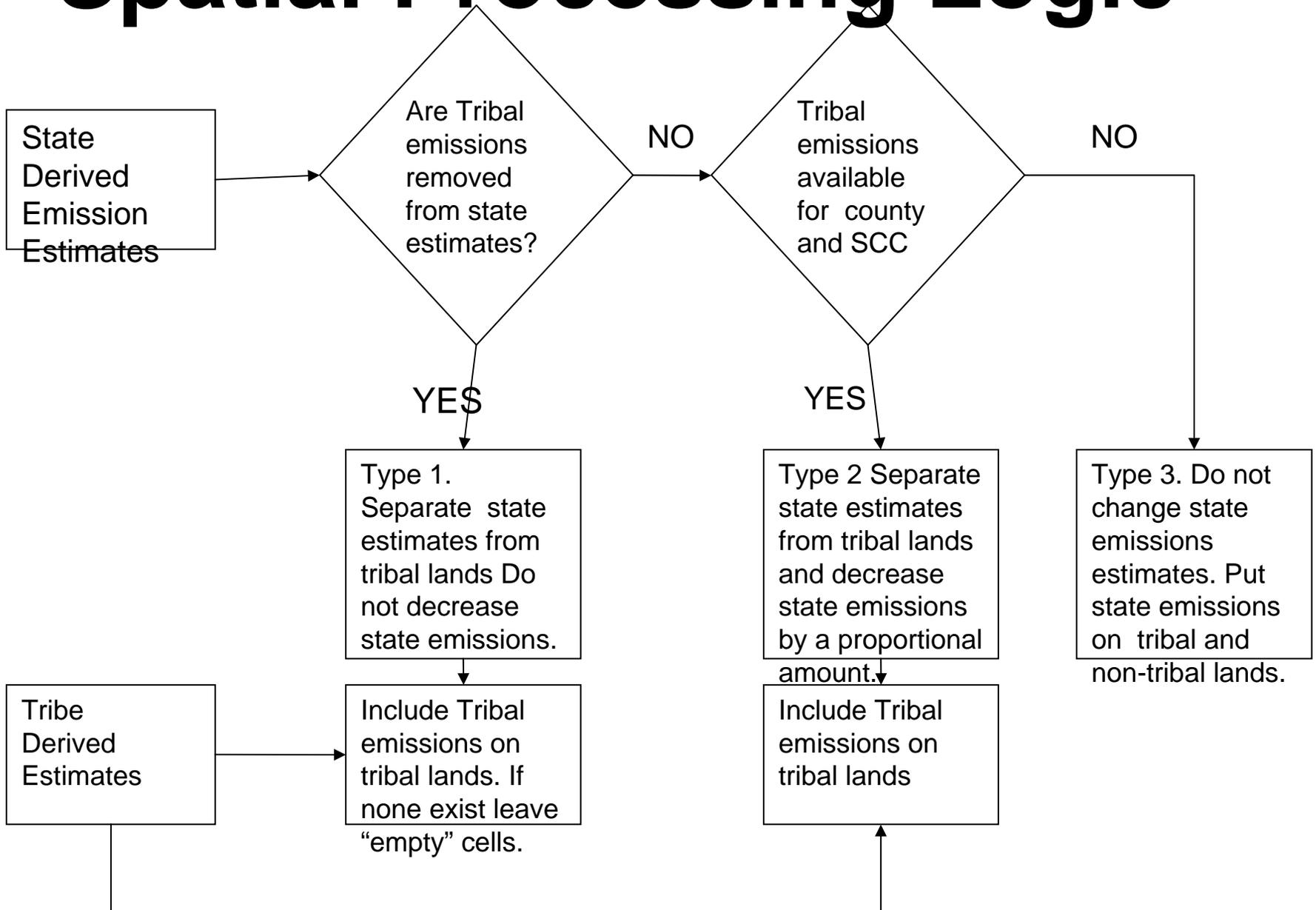
Fundamental Assumptions

- State inventories do not "Actively Remove" Emissions so if A stgat

Spatial Processing Logic

State Derived Emission Estimates

Are Tribal emissions removed from state estimates?

NO

Tribal emissions available for county and SCC

NO

YES

YES

Type 1. Separate state estimates from tribal lands Do not decrease state emissions.

Type 2 Separate state estimates from tribal lands and decrease state emissions by a proportional amount.

Type 3. Do not change state emissions estimates. Put state emissions on tribal and non-tribal lands.

Tribe Derived Estimates

Include Tribal emissions on tribal lands. If none exist leave "empty" cells.

Include Tribal emissions on tribal lands

Development of National Surrogates

- MWRPO Has contract with Alpine Geophysics to develop new national Surrogates with CONCEPT's Spatial Processor with new tribal surrogate methodology.

- Completed in September/October

- SMOKE/EMS/EPS do not currently have automated methods to include tribal inventories.

Where We Go From Here?

- MWRPO volunteered to do this 18 months ago.
- Talked with EPA, ITEP, MWRPO.
- Need to bring it to other RPO's
  - Tribes, FLM's, States, EPA.
- Modify RPO Protocol to version 1.1