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NEPA Streamlining: The Advantages of Creating a Resource Document for Project-Level Air Quality Analyses

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Outline

- Needs and Objectives
- Inter-Agency Consultation for Conformity – Regulation and Guidance
- General Approach
- Key Elements
  - Resource Document
  - Data Warehouse
  - Protocols
- Conclusions
- Questions

Needs or Challenges

- **Transition to new models and associated regulations & guidance**
  - MOVES, CAL3QHCR, & AERMOD, and associated traffic
    - Need to establish new data sources on an ongoing basis
    - New/increased focus on background concentrations & meteorology
    - Limited to no state DOT experience in new areas (AERMOD)
  - Meeting NAAQS not as routine for PM as for CO (given smaller margins)
  - Further changes pending (NEPA)
  - Implementation of Programmatic Agreements (existing/new)
  - Related: NEPA documentation, Scoping Requirements for consultants
- **Meet Inter-Agency Consultation requirements for conformity (IACC) , where applicable**
  - 40 CFR 93.105(c)(1)(i) Models, Methods and Assumptions (**MMA**)
  - Adds time, cost & uncertainty in process & outcome, especially for high profile or controversial projects
  - Need proportionality in approach for routine vs high profile/controversial projects
- **QAQC for data collection & analysis for new models & guidance**
  - Smaller margins for PM + increased emphasis on IACC = Increased focus on QAQC
  - Increased potential for unrecognized error for data/sources (esp. for AERMOD)
- **Mitigating potential increased risks**
  - Process delays (modeling/IAC), outcomes, litigation

Objectives

- **Streamline**
  - Modeling chain (Traffic, Emissions and Dispersion) & Reporting
    - Scoping, Data Collection & Analysis, and Modeling Process, Documentation
  - IACC Process

- **Implement QA/QC**
  - Modeling inputs, Modeling Application, NEPA Documentation
  - Support new areas (e.g., AERMOD) by involving subject matter experts (SMEs)

- **Mitigate risks**
  - Process delays, outcomes, litigation

Inter-Agency Consultation for Conformity (IACC): Regulation

40 CFR 93.105:

(c) Interagency consultation procedures: Specific processes. Interagency consultation procedures shall also include the following specific processes:

(1) A process involving the MPO, State and local air quality planning agencies, State and local transportation agencies, EPA, and DOT for the following:

(i) Evaluating and choosing a model (or models) and associated methods and assumptions to be used in hot-spot analyses and regional emissions analyses;

Inter-Agency Consultation for Conformity (IACC): Guidance

US EPA, "*Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas*", EPA-420-B-13-053, November 2013, pp.8-9 (emphasis added)

This guidance describes when consultation on specific decisions is necessary, but

for many aspects of PM hot-spot analyses, the general requirement for interagency consultation can be satisfied without consulting separately on each and every specific decision that arises. In general, as long as the consultation requirements are met, agencies have discretion as to how they consult on hot-spot analyses.

For example, the interagency consultation process could be used to make decisions on a case-by-case basis for individual transportation projects for which a PM hot-spot analysis is required. Or,

agencies involved in the consultation process could develop procedures that will apply for any PM hot-spot analysis and agree that any departures from procedures would be discussed by involved agencies.

For example, interagency consultation is required on the emissions model used for the analysis, but agencies could agree up front that the latest EPA-approved version of MOVES will be used for any hot-spot analysis necessary in an area that is not located in California. As a second example, agencies could agree ahead of time that, if appropriate, instead of modeling all four quarters of the year for a 24-hour PM NAAQS, only the quarters that were modeled for the latest SIP demonstration for that NAAQS need to be modeled in a hot-spot analysis.

General Approach – Step 1

- **Create a Web-Based Resource Document & Data Warehouse**
  - **Resource Document:**
    - PDF Report with summary of data/sources (MMA)
  - **Data Warehouse:**
    - Comprehensive set of modeling input data, sample input files, any referenced programmatic agreements, & related documents (below)
  - ***Platform: State DOT Website***
    - *Considerations: ownership, access (modelers/IACC), who maintains etc.*
  - ***Related Documents (as applicable for your state DOT)***
    - *Scoping Guidance*
      - Provide consultants/modelers direction on use of all related resources
        - Resource Document, NEPA Document Template, and Traffic Guidance
      - Critical:
        - Scope projects making use of the Resource Document & associated data warehouse
        - Do NOT unnecessarily conduct data collection & analysis and IACC on a project-specific basis
    - *NEPA Documentation Template*
      - *References the Resource Document & its IACC*
    - *Traffic Guidance* - State DOT or other

General Approach – Step 2

- **Conduct IACC on the Resource Document & Data Warehouse:**
  - **For areas subject to conformity, consult on:**
    - MMA
    - Policies, procedures and/or protocols, including:
      - Ones *needed* at a minimum to meet conformity requirements
      - Others *discretionary*, as determined by the state DOT
        - Include a definition for "*substantive changes*" (*departure*)
  - **Invite subject matter experts (SMEs)**
    - To facilitate and lend added credibility to the IAC process, especially for area in which state DOTs have little experience
      - AERMOD, meteorology, monitoring/background concentrations, etc.
    - SMEs from US DOT, state air agency, consultants etc.
  - **Document the IACC in detail, including comments and responses**
    - Include a summary with the Resource Document
  - **Reference the IACC on the Resource Document in the NEPA document template**
    - Project-specific reports will automatically include

General Approach – Step 3

- **Conduct Project-Specific IACC *(either as needed, or discretionary)***

  - ***As needed*:**
    - For any *substantive* changes in MMA from the Resource Document
    - *Substantive* to be defined in the Resource Document & subjected to IACC

  - ***At the discretion of the state DOT*:**
    - High profile or controversial projects
    - Projects for which an EIS is being prepared

  In either case:

  - **Focus IACC on only those MMA that:**
    - Differ substantively from those specified in the Resource Document
    - Are otherwise of specific interest for the project

  - **Still rely upon the Resource Document for MMA that have not changed substantively**

Resource Document – Main Report

- **Final version printed (or PDF) with date marked**
  - Designed to be enduring, with minimal need for updates
- **Summarizes models, methods and assumptions/data and sources**
  - Comprehensive – Pollutants, Geography, Models
    - All pollutants for conformity and NEPA (CO, PM and MSATs)
    - Geography: Statewide coverage with files by county
    - Emission & Dispersion Models, & Sources for traffic & activity
  - Separate sections for NEPA & conformity, to facilitate implementation:
    - NEPA – Coordinate with FHWA Division Office & others as appropriate
    - Conformity – As NEPA plus Conformity IACC
  - References the website and data warehouse
  - General Policies, Procedures & Protocols
- **Optional: Programmatic Agreements & CO Categorical Finding**
  - By reference
  - IACC also provides opportunity to make key terms of PAs applicable for conformity
- **Appendices:**
  - Excerpts from sample model input files,
  - Documentation for background concentrations and persistence factors
  - Summary documentation of IACC conducted on the Resource Document
  - References & links to related documents & websites

Data Warehouse or Library (Web-based)

- **Input Data (Fuel data, registration distributions, meteorology etc):**
  - Spreadsheet, database, text and other files
  - Allows modelers to build input files for emission and dispersion modeling
  - May be updated independently over time
- **Sample set of formatted model input files** *(e.g., 2015):*
  - Emphasis on “working” files to show model inputs are valid
  - Also shows:
    - No model/input was overlooked in the Resource Document
    - IACC requirements are unequivocally met for all MMA.
- **Can source by agency responsibility or strength:**
  - *State DOT - Traffic and activity data and forecasts, typically project-specific.*
  - Air Agencies:
    - MPO for regional conformity files
    - State Air Agency
      - National Emission Inventory (NEI) (for areas not subject to conformity)
      - Other non-traffic files (meteorological, ambient monitoring data for background concentrations)
  - Files provided by air agencies:
    - Adds to credibility of modeling inputs, and may be cost-effective for the DOT,
    - But may need agreements or working arrangements for the data to be provided on an ongoing basis

Potential Protocols or Subjects for Protocols

Streamlining:

- Analyses limited to that required by regulation (no additional or “on request”).
- Screening and Worst-Case Analyses
- Base Year and No-Build Analyses
- Updates to Previously Completed Studies

Traffic and Activity Data and Forecasts:

- Based on federal and Department guidance as available
- Prepared by traffic and/or transportation planning staff (litigation issue)
- Typically the lowest cost and most straightforward option applied *(microsimulation costly)*

Background Concentrations:

- Exceptional and “exceptional-type” events

Changes in Roadway Grades

Limitations for Modeling of Stationary Sources

Administrative:

- Latest regulations and guidance
- Study Initiation
- Final Arbiter: The state DOT is the final arbiter on all aspects of project-level analyses prepared by or on behalf of the state DOT.

Conclusions

- **Objectives met:**
  - **Streamlining & facilitating analyses**
    - Reduce project-specific “re-work”: Data Collection & Analysis, NEPA Documentation
    - Protocols/ PAs: Manage scopes and limits potential for unnecessary work
    - IAC: Focused up-front on resource document (not project by project)
  - **Quality Standards**
    - Vetted Data (QA/QC & IAC with SMEs), Template Report
  - **Mitigate Risks (delays, outcomes and litigation)**
    - By streamlining & QAQC

- **Bottom Line:**
  - **Save time & cost**
  - **Improved risk management**
  - **Improved deliverables**
    - NEPA Documentation
    - Environmental Clearances

Questions?

TRAILER

Potential Protocols or Subjects for Protocols

Streamlining:

- **Analyses limited to the minimum required by regulation (no additional or "on request"). Examples:**
  - Number of Pollutants
  - Number of Model Runs
  - Project Area and Affected Facilities
    - Technical determination, not subjective or "on request"
  - Modeling of Alternatives or Scenarios
- **Screening and Worst-Case Analyses (as appropriate)**
  - Typical for CO
- **Base Year and No-Build Analyses (as appropriate)**
  - Typically not conducted if the build scenario meets the NAAQS
- **Use of Utility and Interface Software**
  - EPA, FHWA (e.g., CAL3i), NCHRP 25-48, Vendor
- **Process Improvement**
  - Based on research, experience, etc.
  - May include BPs.

Potential Protocols or Subjects for Protocols

Traffic and Activity Data and Forecasts:

- **Generated based on federal and Department guidance as available and applicable, which may be updated periodically.**
- **Prepared by traffic and/or transportation planning staff**
  - Not staff or consultants that do *not* have the requisite training and experience in traffic (potential issue if a project is litigated)
  - Exceptions for compiling data already available, e.g., HPMS data, published reports including those for the periodic emission inventory, posted speeds, etc.
- **Typically the lowest cost and most straightforward option applied**
  - Average speeds for highway projects
  - Atypical: microsimulation (expensive), project-specific link drive schedules or operating mode distributions.

Potential Protocols or Subjects for Protocols

- **Background Concentrations:**
  - **Initial tabulation for CO and PM generated in cooperation and consultation with the state air agency**
    - Provide with the Resource Document (appendix)
    - Also Persistence factors for CO (which may be higher than the EPA default)
    - Note periodic updates to be made, based on the same calculation procedures
  - **Exceptional and exceptional-type events**
    - May update procedures following NCHRP study in progress & EPA direction/guidance
  - **Future background concentrations may be based on CTM modeling per EPA**
    - Options include joint initiatives with multiple organizations/jurisdictions
  - **Updates to monitoring network**
    - Near-road sites generally not appropriate for background concentrations
- **Changes in Roadway Grades:**
  - **Interim Protocol: Percentage threshold for changes in grade for modeling**
  - **Future Update: When future studies and/or guidance are available.**
- **Limitations for Modeling of Stationary Sources**

Potential Protocols or Subjects for Protocols

Administrative:

- **Latest regulations and guidance**
  - Note: The Resource Document is not a guidance document and therefore does not list, summarize or reiterate regulations or guidance.
- **Study Initiation**
  - Definition provided based on project milestones, e.g., the earliest of the dates that traffic or design information are requested, a task was officially assigned for the air study, etc.
  - Useful for determining whether a study in progress (but not completed) was initiated before the end of a grace period for a new or updated model, and therefore whether the study can rely upon the previous model and/or modeling or whether updates will be required.
- **Updates to Previously Completed Studies**
  - Generally not required unless there are "**substantive changes**" to the models, methods and/or assumptions, by the definition provided in the resource document
- **Input Data and Files**
  - May be updated over time following established procedures
- **Final Arbiter: The Department is the final arbiter on all aspects of project-level analyses prepared by or on behalf of the Department.**