

2018-2019 WRAP Workplan

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# WRAP Introduction

The Western Regional Air Partnership (WRAP) is a voluntary partnership of states, tribes, federal land managers, local air agencies and the U.S. EPA whose purpose is to understand current and evolving regional air quality issues in the West[[1]](#footnote-1). The non-incorporated WRAP is administratively housed by the Western States Air Resources Council (WESTAR), a 501(c)(3) organization. WESTAR is a partnership of 15 western states formed to promote the exchange of information, serve as a forum to discuss air quality issues, and share resources for common benefit[[2]](#footnote-2). WESTAR accepts grant funding for operations of both WESTAR and WRAP, enters into contracts and performs all financial functions for the WRAP. The WRAP Board approves WRAP actions; the WESTAR Council approves WESTAR actions. WRAP and WESTAR hold joint business meetings twice a year. More about the working relationship between WRAP and WESTAR can be found in the WESTAR and WRAP Joint Operating Agreement[[3]](#footnote-3) finalized August 1, 2017.

The WRAP Charter[[4]](#footnote-4) sets forth the purposes, principles and operating procedures for the WRAP. Co-Chairpersons of the WRAP Board of Directors facilitate consensus on all issues that come before the organization. The WRAP Board of Directors established the Technical Steering Committee (TSC) to oversee and direct the technical and analytical work and established Work Groups to manage specific elements of the work plan. A detailed description of the WRAP organizational structure is found as Attachment 1 of Appendix A.

The WRAP promotes, supports, and monitors the implementation of air quality management initiatives within and affecting the western U.S. through a process that strives for consensus (general agreement) among its partners and stakeholders[[5]](#footnote-5). It is the intent of the WRAP Board to resolve all issues on a consensus basis. Consensus has the following parameters:

* Consensus is agreement.
* Consensus is selection of an option that everyone can live with.
* Consensus may not result in the selection of anyone’s first choice, but everyone is willing to support the choice.
* Consensus is not a majority vote.

In April 2018, the WRAP Board and WESTAR Council approved the Regional Haze Principles of Engagement to guide WRAP and WESTAR member and organizational efforts during the second round of regional haze analysis and planning.[[6]](#footnote-6) The WRAP/WESTAR regional haze planning process is owned by the WRAP/WESTAR membership and is dependent on member contributions, participation, and discussion. Members and ex-officio members are obligated to raise concerns and comment as issues arise to promote a transparent and trustworthy partnership among all involved[[7]](#footnote-7). WRAP and WESTAR committees work together to avoid duplication and enhance the collaboration needed for efficient, effective, and timely preparation and delivery of work products.[[8]](#footnote-8)

The WRAP Board formed a four-member Administrative Subcommittee on Funding in the spring of 2017 to identify funding mechanisms to implement the WRAP Workplan. WESTAR’s reporting system tracks the disposition of resources and work products. At the twice-yearly joint WESTAR/WRAP business meetings, the Treasurer of WESTAR provides a financial report detailing the status of grants, contracts and expenditures of both WESTAR and WRAP[[9]](#footnote-9).

# Summary of 2018-2019 Workplan

The 2018-2019 WRAP Workplan describes the topics, tasks, associated projects, and objectives for the WRAP TSC and Work Groups to continue in implementing the five goals laid out in the [WRAP Strategic Plan and Vision Statement](http://www.wrapair2.org/pdf/WRAP%20Strategic%20Plan%20final%20March_2015.pdf)adopted by the WRAP Board on March 9, 2015. These five goals are:

1. Provide a forum for regional collaboration on technical and planning topics of common interest to the members.
2. Share and act on the current and future priority technical support needs of the members.
3. Provide timely and efficient access to needed technical information that is credible, current, comprehensive, and consistent for air quality management decisions.
4. Deliver technical support, training, products, and other services that meet the priority needs of the members.
5. Advocate and advance western technical issues for resolution.

In 2017, the WRAP achieved the near-term strategic objectives established by the WRAP Board in February 2016[[10]](#footnote-10):

* The TSC and Work Groups are operational,
* Funding for 2018/2019 is in place,
* Annual Workplans are in place to measure and track WRAP activities,
* The Regional Technical Operations Work Group is beginning work on a Regional Technical Operations Center, and
* The 2018-2019 Workplan continues implementation of the March 2015 WRAP Strategic Plan and Vision Statement.

Additional 2017 WRAP Workplan accomplishments are described in the appendices for each Work Group’s 2018-2019 Workplan activities (section IV).

The 2018-2019 WRAP Workplan builds from the WRAP functional structure and five topical Work Groups established in the 2016 Workplan and identifies tasks for the TSC and each Work Group for 2018 and 2019. The 2018-2019 Workplan focuses on technical and planning analyses supporting Regional Haze State and Tribal Implementation Plan development, led by the Regional Haze Planning Work Group (RHPWG) and supported by all other Work Groups. The 2018-2019 WRAP Workplan also addresses associated regional analysis and technical support by the Work Groups, such as for Exceptional Events demonstrations and NAAQS SIPs and TIPs.

Sections A-F below provide an overview of these tasks. Part III of the 2018-2019 WRAP Workplan contains a tabular listings of key check-in points and milestones for regional haze, as well as associated regional analysis support, and budget summary. Part IV of the Workplan contains appendices presenting the detailed 2018-2019 Workplans for the TSC and all Work Groups, including deliverables. A description of the WRAP organizational structure is found as Attachment 1 of Appendix A. Appendix G provides detailed Gantt charts for the implementation of this Workplan.

Due to the inherent uncertainties with the reconsideration of the January 2017 Regional Haze Rule revision and draft nature of the July 2016 U.S. EPA guidance, the TSC, with the assistance of WRAP staff and Work Group Co-Chairs, revisited the 2018-2019 Workplan in the 4th calendar quarter of 2018 to conduct a mid-course review and progress assessment to identify outstanding issues and propose new tasks, in the interest of having a current Annual Workplan for the Board, TSC, Work Groups, and WRAP member agencies. Changes to the Regional Haze program and/or guidance by EPA may also necessitate review of the Workplan.

1. **Implement and Manage Coordination: Technical Steering Committee**

The TSC organizes, directs, and coordinates WRAP Work Groups and project activities, with the TSC Co-Chairs serving as liaisons to the Board responsible for reporting TSC activities to the Board. The TSC manages TSC activities and provides oversight to WRAP Work Groups and activities. Work Group Co-Chairs lead and execute the activities associated with the individual Work Groups. The TSC holds the lead responsibility for the annual WRAP Workplan.

The TSC and Work Groups are to conduct their business on a consensus basis. When a Work Group cannot reach consensus on an issue, it will be referred to the TSC. If the TSC cannot reach a consensus on the issue, it will be referred to the WRAP Board for resolution.

In consultation with Work Group Co-Chairs, the TSC will review and seek Board approval of the 2018-2019 Workplan. The Work Groups will provide inputs to the TSC for the workplan and budget for Board approval, covering technical projects and Work Group coordination. WRAP staff will provide support for the TSC and Work Groups. The TSC will focus on providing oversight of the work groups, committees and projects or tasks by reviewing and directing the effort of WRAP Work Groups and staff to manage projects via routine status reports, the annual workplan and budget, and periodic interaction with contractors. The TSC will meet regularly with Work Group Co-Chairs.

The TSC has been delegated the responsibility to prepare an allocation of funds in hand for both operations and technical analysis activities and track them for the Board. The TSC is well positioned to work with WRAP and WESTAR staff to manage expenditures and anticipate the needs for additional funding. The TSC will coordinate among and provide oversight for activities conducted under grants, cooperative agreements, and other Board-authorized projects, and coordinate with WESTAR work groups and committees to ensure WRAP activities provide needed support. The TSC will report to the WRAP Board at scheduled Board meetings. (See Appendix A)

###  Support Technical and Planning Analysis for Regional Haze State and Tribal Implementation Plans (SIPs and TIPs)

Regional Haze Implementation Plan preparation is a multi-year effort requiring regional planning and interstate coordination and consultation, as well as consultation with the FLMs and affected Tribes. Regional Haze SIP and TIP preparation requires extensive technical support: analyzing monitor data, developing and analyzing emission data, baseline and future year modeling, and control analyses. Preparation of Regional Haze SIPs and TIPs is facilitated by public access to regional planning data.

The RHPWG will focus on identifying and prioritizing the RH SIP preparation requirements and required technical support, providing a schedule and framework to support regional planning, and integrating the activities of other WRAP Work Groups to ensure the needed elements are available to meet the July 2021 SIP submittal deadline. Support for RH TIP preparation will be facilitated by the Tribal Data Work Group (TDWG). The RHPWG will direct the activities of subcommittees formed by the RHPWG. Additional tasks may be developed in response to the reconsideration of the RHR and finalization of draft EPA implementation guidance. (See Appendix B)

### Promote Understanding of Role of Fire and Smoke in Regional and Local Air Quality Plans

Fire emissions, both natural and anthropogenic, are important pollution sources across the Western U.S. and are expected to increase in both intensity and duration for a variety of reasons, including accumulated fuels, climate changes, drought, and other factors. Estimating and tracking fire emissions will improve the understanding of the role of fire and smoke in NAAQS attainment and for Regional Haze planning, both now and in the future. Modeling a range of future fire emissions will help constrain future impacts from this sector.

The Fire and Smoke Work Group (FSWG) will focus on analysis and planning activities related to improving activity data to support emissions inventories for fire and smoke emissions, begin scoping work to assess present and range of future year contributions of natural sources such as fire, undertake evaluation of Smoke Management Programs, survey and compile information about Exceptional Events assessment efforts, review the treatment of fire and smoke emissions in modeling studies, and improve coordination between state, tribal, and federal agencies. Several of these activities involve close coordination with other WRAP Work Groups as described in the FSWG Workplan. FSWG activities equally support Regional Haze planning and associated regional analysis technical support for Exceptional Events demonstrations and NAAQS SIPs and TIPs. (See Appendix C)

### Promote Understanding of Role of Oil and Gas in Regional and Local Air Quality Plans

Emissions from the exploration, development, and production of oil and gas resources, as well as emissions from their transport and use, impact the Intermountain Region and other portions of the WESTAR-WRAP region. Air quality model performance will be improved by refining emissions inventories, especially from the rapidly changing Oil and Gas sector. Modeling a range of future emissions from the Oil and Gas sector will constrain future impacts from this sector.

The Oil and Gas Work Group (OGWG) will focus on analysis and planning activities related to improve activity data to support emissions inventories for oil and gas emissions, and begin scoping work to assess the scope of both the present, and the range of future year emissions management programs by the variety of regulatory jurisdictions within the WESTAR-WRAP region, by agency. The OGWG will coordinate among state, tribal, local, and federal member agencies’ Oil & Gas programs, including review of modeling, monitoring, and control program assessment studies for Oil & Gas emissions. Several of these activities involve close coordination with other WRAP Work Groups as described in the OGWG Workplan. Oil and Gas Work Group activities primarily support Regional Haze planning but also address associated regional analysis technical support for Exceptional Events demonstrations and NAAQS SIPs and TIPs. (See Appendix D)

### Provide Regional Technical Capabilities

Efforts by regional, federal, state, tribal, and local groups provide a strong foundation for regional collaboration on technical analysis in support of air quality planning across the Western United States. Various modeling platforms within the WESTAR/WRAP region, numerous special studies, and state, tribal and local air agency programs provide the basis for regional collaboration in support of technical analysis and air quality planning.

The Regional Technical Operations Work Group (RTOWG) will focus on regional analysis in support of planning activities related to: emissions and modeling for regional haze, ozone, PM, and other indicators of background and regional transport; sensitivity and other analyses of emissions data focused on the western U.S.; and performing and leveraging modeling, data analysis, and contribution assessment studies. Work will include investigation of “background ozone” impacts to western U.S. locations and coordination and collaboration with other WRAP member-sponsored regional air quality modeling groups, including the Intermountain West Data Warehouse (IWDW), the Air Information Report for Public Access and Community Tracking (AIRPACT), U.S.EPA Office of Air Quality Planning and Standards (OAQPS), Bay Area Air Quality Mgmt. District, and other state and local agencies doing regional ozone modeling. In addition, work will provide guidance on more complete and uniform model performance evaluations (MPEs) and develop and implement a protocol to use the IWDW-Western Air Quality Study (WAQS) capabilities to be the WRAP Regional Technical Center. Several of these activities involve close coordination with other WRAP Work Groups as described in the RTOWG Workplan. RTOWG activities support the spectrum of air quality planning issues across the WRAP with an emphasis on Regional Haze planning, but including NAAQS SIP and TIP development and exceptional events demonstrations. (See Appendix E)

###  Support Development of Tribal Air Quality Capacity and Capability

There are 480 federally recognized Tribes within the Western Regional Air Partnership (WRAP) with more than half in Alaska. There are 61 Tribal air quality programs in the WRAP area, excluding those in Alaska. WRAP currently has 23 active member tribes. Each Tribal air quality program has unique needs and requires specific emphasis to meet their goals.

The TDWG will focus on data gathering regarding the size, complexity, and scope of tribal air needs, expanding staff capacity, continuing current funding and identifying additional funding resources, and building capability by providing training opportunities from organizations specific to Tribes. The TDWG will closely coordinate with other WRAP Work Groups to assist in facilitating assessments and technical analyses that support TIP development and tribal air program efforts and activities among the spectrum of air quality planning issues across the WRAP. (See Appendix F)

1. **Milestones and Budget 2018-2019**

1. 2018-2019 Workplan Milestones

Key 2018-2019 Workplan milestones are outlined in the tables below. Check-ins (black boxes) and critical milestones (red boxes) for regional haze technical planning support are found in Table 1, and ongoing activities and check-ins for associated regional analysis technical support are found in Table 2. Master 2018-2019 WRAP Workplan Gantt Charts showing more detail for tasks and deliverables by Work Group, TSC and contracted support are included in Appendix G for both regional haze technical planning support and associated regional analysis technical support. Descriptive detail on 2018-2019 Workplan tasks and deliverables for the TSC and each of the Work Groups is found in the TSC and Work Group Workplans in Appendices A-F.

Table 1: Key Check-Ins and Critical Milestones for Regional Haze Planning Technical Support (by Task)



Table 2: On-going Activities and Key Check-Ins for Associated Regional Analysis Technical Support (by Work Group)



1. Budget Table Summaries

The budget summaries below show the 2018-2019 WRAP budget and funding sources by TSC and Work Group (Table 3) and current and on-the-way contracted support by applicable Work Group (Table 4). Note the current and on-the-way contracted support costs are included in the overall 2018-2019 WRAP budget shown by Table 3.

Table 3: 2018-2019 WRAP Budget

|  |
| --- |
| **2018-2019 WRAP Budget** |
| **Work Group** | **2018**  | **2019**  | **Funding Source** |
| TSC / Board / WRAP Operations  | $217,000  | $152,000 \* | EPA Regions / WESTAR discretionary fund |
| FSWG | $35,000  | $65,000 + $17,000 for FETS Update  | Regional Analysis Funds |
| OGWG | $60,000  | $85,000  | Regional Analysis Funds |
| RHPWG | $125,000  | $125,000  | Regional Analysis Funds |
| RTOWG |  |  |   |
|  Monitoring | $60,000  | $25,000  | Regional Analysis Funds |
|  Emissions | $100,000  | $150,000  | Regional Analysis Funds |
|  | $50,000 |  | WEST Associates  |
|  Modeling  | $240,000  | $250,000  | Regional Analysis Funds |
| TDWG | $30,000  | $50,000  | Regional Analysis Funds |
| **Totals** | **$700,000**  | **$750,000**  | **$1,450,000**  |
| \* assuming level funding, more funding requested to match 2018 |

Table 4: Current and On-the-Way Contracted Support

|  |
| --- |
| **Current and On-the-Way Contracted Support\*** |
|  | **2018** | **2019** | **Description** |
| **Current Contracted Support** |   |   |
| RTOWG | $25,000  | -- | Modeling Year Representativeness Analysis |
| FSWG | $10,000  | --  | Fire Emissions Tracking System Modernization Analysis |
| OGWG | $21,000  | --  | Analysis and Planning Road Map |
| **Total**  | **$56,000**  |  |   |
| **On-the-Way Contracted Support** |
| RHPWG | $125,000  | $125,000  | CSU/CIRA TSS v2 development and deployment |
| TDWG | to be determined | to be determined | Institute for Tribal Environmental Professionals (ITEP) WG support |
| **\* Funded from 2018-2019 WRAP Budget** |  |  |

1. Appendices

Appendix A

**Technical Steering Committee Description, 2017 Update and 2018-2019 Workplan Activities**

Introduction

This document presents the member qualifications, membership and committee structure, meeting and call schedule, duties, and work group oversight activities of the WRAP Technical Steering Committee (TSC) under the requirements of the WRAP Charter[[11]](#footnote-11) and Board-approved planning documents. This 2018-2019 version of this document updates the Technical Steering Committee Description approved by the Board in 2015.[[12]](#footnote-12) Updates to this document can be made through the WRAP Board at any time, and can be initiated by the Board, TSC members, or at the suggestion of WRAP member agencies.

Purpose

The TSC provides oversight of WRAP technical projects and Work Groups, and coordinates with WESTAR work groups and committees to provide needed support. The TSC serves as liaison to the Board and reports on the TSC and Work Group activities. Attachment 1 provides an overview of the WRAP organizational structure including the duties and relationships between the Board, WRAP staff, the TSC, Work Groups, and Project Teams.

TSC Co-Chairs and Work Group Membership Structure and Terms

Frank Forsgren, Nevada Division of Environmental Protection, Bureau of Air Quality Planning

Julie Simpson, Nez Perce Tribe, Air Quality Program

The TSC will have two (2) Co-Chairs appointed by the Board. TSC Chairs will be from WRAP member organizations. The Co-Chairs will be responsible for serving as liaisons to the Board and reporting on the TSC activities to the Board, with support from WRAP staff.

TSC members are from WRAP member organizations and are senior air quality technical or planning program management staff with experience in air quality programs distributed between tribal, state, local, and federal representatives. The desired distribution of TSC members is to reflect the diversity of member agency programs and air quality issues across the WRAP region, and draw upon the substantial collaborative regional air quality technical and planning needs and experience of WRAP member agencies.

The TSC is composed of:

* Three (3) state representatives;
* Three (3) tribal representatives;
* Three (3) Local Air Agency representatives – at least one (1) from the non-California WRAP region; and
* Three (3) federal agency representatives – one (1) of whom will represent the U.S. EPA.

The TSC will function by consensus as defined in the WRAP Charter.

Vacancies among TSC seats may be filled by the Board at any time. All TSC members and Chairs will be appointed for two-year terms. To assure appropriate time and effort commitment, the Board will nominate individual TSC members and the WRAP member agency representative from the nominee’s agency will accept the nomination.

The TSC Co-Chairs may include participation from other WRAP member agencies. The TSC Co-Chairs will consult with the Board for participation from non-member agencies, industry, and environmental stakeholders. These participants beyond the core TSC Members will be considered Advisors. The TSC will discuss with the Board, the involvement of non-members, in the context of the annual Workplan update, including seeking the agreement of the Board for specific, named individuals from non-WRAP member agencies.

Duties and WRAP Staff Support

The TSC will have at least bi-monthly conference calls to manage TSC activities and provide oversight to WRAP work groups and projects. The TSC will oversee the preparation of an annual workplan and budget for Board approval, covering technical projects and Work Groups. The TSC may have meetings immediately preceding or following the Spring and Fall WRAP membership meetings, and/or other meetings as needed, to plan next steps, address comments and concerns, and review Workplans and activities. The TSC Co-Chairs will plan and direct the calls and meetings, and with assistance from WRAP staff, take the lead in communications and other necessary Board interaction.

WRAP staff will provide support for TSC calls and meetings. WRAP staff will assist with arranging and documenting TSC calls and meetings, prepare TSC Workplans and budgets for review and action, assist with status reports on the Work Groups’ activities, and provide status reports on the deliverables, budgets, and timelines for the WRAP’s technical projects.

Day-to-day management of WRAP technical projects will primarily be conducted by WRAP staff. The TSC will provide oversight and coordination for the work groups, committees, and projects or tasks listed below by reviewing and directing the effort of WRAP Work Groups and staff to manage these projects, via routine status reports, the annual workplan and budget, and periodic interaction with the contractors operating these systems.

TSC Oversight of WRAP Technical Projects

The TSC will coordinate among and provide oversight for the activities conducted under following grants, cooperative agreements, and other Board-authorized WRAP projects. The tasks comprising the projects are documented in the annual workplan, and posted on the WRAP website.

1. The WRAP Regional Technical Support portion of the WESTAR-EPA grant;
2. The WESTAR/WRAP-BLM Cooperative Agreement;
3. The WESTAR/WRAP-NPS Cooperative Agreement;
4. Development and ongoing implementation of WRAP regional analysis capabilities; and
5. Any modified or new tasks, projects, and/or initiatives recommended by the Board for implementation via acceptance by WESTAR through new or modified Cooperative Agreements, Grants, Funding Opportunities, or other mechanisms.

TSC Oversight of WRAP Work Groups

The TSC will provide oversight for the following WRAP Work Groups. The activities of the projects and work groups will be documented for review by the Board. Additional or modified Work Groups may be authorized by the Board and those changes made in the appropriate Work Group workplan document and via the annual workplan.

1. Regional Haze Planning Work Group (RHPWG)
2. Fire and Smoke Work Group (FSWG);
3. Oil and Gas Work Group (OGWG);
4. Regional Technical Operations Work Group (RTOWG); and
5. Tribal Data Work Group (TDWG).

WRAP Work Groups will be composed of members from WRAP member agencies, and Co-Chairs of each work group will be designated by the TSC to lead and execute the activities associated with the individual work group, outlined in each work group’s workplan document. Some work groups will or could have significant participation from industry and environmental stakeholders, as directed by the Board and overseen by the TSC. The TSC will provide oversight of the work groups by reviewing their annual Workplans, budget, projects and deliverables, via routine status reports, and periodic interaction with the work groups’ Chairs and members.

Coordination

The TSC will also coordinate with the following work groups and committees to ensure activities conducted in WRAP projects, and under the auspices of the TSC and WRAP Work Groups provide needed support:

1. WESTAR Planning Committee;
2. WESTAR Technical Committee; and
3. Other groups as designated by the Board or WESTAR Council.

TSC Status Report for 2017 Workplan

In 2017, the WRAP achieved the near-term strategic objectives established by the WRAP Board in February 2016. The table below lists these strategic objectives and identifies 2017 WRAP Workplan accomplishments. Strategic objective activities will be carried forward into 2018-2019 Workplan:

|  |  |
| --- | --- |
| WRAP Near-Term Strategic Objective | Progress |
| Create and operate the TSC and topical Work Groups. | Accomplished.Operation of Work Groups to continue in 2018-2019. |
| Create stable, sufficient funding for staff to support WRAP, organizational activities, and enable participation by all member agencies. | Accomplished.Activity to continue in 2018-2019. |
| Approve and utilize the WRAP Workplan to measure and track WRAP activities. | Accomplished.Activity to continue in 2018-2019. |
| Design and bring the Regional Technical Center (RTC) on-line. | Regional Technical Operations Working Group formed in 2016, developed a 2017 Work Group Workplan, and began RTC work in 2017.Activity to continue in 2018-2019. |
| Continue implementation of the March 2015 WRAP Strategic Plan and Vision Statement.[[13]](#footnote-13) | Accomplished.Activity to continue in 2018-2019. |

In 2017, the Technical Steering Committee accomplished its tasks as laid out in the 2017 Annual WRAP Workplan and summarized in the table below. Many of the 2017 tasks have components that will also be addressed in the 2018-2019 WRAP workplan, as noted.

| 2017 TSC Task | 2017 Progress | Outstanding Tasks |
| --- | --- | --- |
| -Oversee finalization of the 2017 calendar year annual workplan and budget for Board approval. -All WRAP Work Groups’ tasks and activities, as well as WRAP projects are documented in the annual workplan.  | Accomplished: -2017 Annual WRAP Workplan approved by WRAP Board August 14, 2017 | Carry any uncompleted 2017 Workplan tasks forward in the 2018-2019 WRAP Workplan |
| -Coordinate among and provide oversight for activities conducted under grants, cooperative agreements, and other Board-authorized WRAP projects.-Provide monthly status updates to WRAP Board, including Work Group progress and the activities conducted under grants, cooperative agreements and other Board-authorized WRAP projects.-Provide coordination for the Work Groups and staff, and their projects and tasks.-Ensure periodic interaction with Work Group Co-Chairs and Members and with the contractors operating any projects | Accomplished:-TSC Co-Chairs and WRAP Staff participated in WRAP Board calls and Spring and Fall WRAP/WESTAR Business Meetings-Initiated and held monthly TSC calls-Participated in WG calls -Participated in WRAP Meetings of Administrative Subcommittee on Funding-Status and Budget Reports at WRAP Board Meetings and Spring and Fall WRAP/WESTAR Business Meetings-Other calls scheduled as needed | Ongoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan, as appropriate |
| Workplan and Work Group oversight and direction* Work with the Board-approved Work Group Co-Chairs to complete Work Group memberships
* Work with the WRAP Work Groups on development and finalization of their individual Work Group Workplans
* Establish monthly status reports, with Work Groups and WRAP project leads reporting progress to the TSC during monthly TSC meeting
* Hold two Technical Planning meetings with TSC Members and Work Group Co-Chairs
 | Accomplished:-Work Group membership approved by Board- Participated in Work Group calls to facilitate workplan development-Monthly progress reported at scheduled TSC Member / Work Group Co-Chair calls-Organized and held spring and fall WRAP Technical Planning meetings April 12 (virtual) and Oct 26-27 (in-person), 2017  | Ongoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan, as appropriate |
| -Coordinate with WESTAR committees and work groups to ensure activities conducted in WRAP projects, under the auspices of the TSC and WRAP Work Groups, provide needed support.-Maximize coordination within WRAP and leverage work of other related partner organizations through outreach, hosting and attending technical conferences and producing white papers to network with other organizations with common interests and needs. | Accomplished:-Participate in WESTAR Technical and Planning Committees call-Hosted 2 technical planning meetings-Attended relevant technical conferences-Organized and held Western and National Regional Haze Planning Workshop Dec 5-7, 2017 | Ongoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan, as appropriate |
| -Develop the 2018 Annual WRAP Workplan and review the associated annual Work Group Workplans, budgets, projects and deliverables-Post WRAP Board-approved Annual WRAP Workplan and status reports of the WRAP Work Groups and WRAP projects to the WRAP website.  | Accomplished: -Initial Development of 2018-2019 Draft WRAP Workplan: October-December, 2017 -Workplan and status reports posted on WRAP website  | Ongoing: These tasks will be carried forward in developing the 2018-2019 WRAP Workplan, as appropriate |

TSC Action Items for 2018-2019 WRAP Workplan

TSC tasks and deliverables for the 2018-2019 Workplan are identified below:

| 2018-2019 TSC Tasks | Deliverables | Schedule | Funding |
| --- | --- | --- | --- |
| Finalize 2018-2019 WRAP Workplan and Budget for all Work Group Tasks and Activities including WRAP Projects | 2018-2019 WRAP Workplan Approved by WRAP Board | Board Approved April 4, 2018 | In-kind |
| Work with Work Groups to Develop and Finalize Individual Work Group Workplans | 2018-2019 Final Draft WRAP Work Group Workplans | Board Approved April 4, 2018 | In-kind |
| Complete Final Edits to 2018-2019 Workplan and Submit Workplan to Board for Approval | 2018-2019 Final Draft WRAP Workplan | Board Approved April 4, 2018 | In-kind |
| Conduct Mid-Course Review, Addressing Scheduling Issues, Identifying and Proposing New Tasks and Opportunities for Collaboration, Prepare Addendums to Workplan | TSC, Work Group Co-Chairs, WRAP Staff Develop Addendums to Workplan, As NeededBoard Approval of Addendums | Mid-Course Review December 2018 – January 2019  | In-kind |
| Continue Implementation of March 2015 WRAP Strategic Plan and Vision Statement[[14]](#footnote-14) | Workplans and Work Products Consistent with Strategic Plan | On-going | In-Kind |
| Provide Oversight and Coordinate Activities Conducted Under Grants, Cooperative Agreements, and WRAP Projects | Monthly Calls of TSC Co-Chairs and WRAP StaffTimely Completion of Projects | On-going Monthly  | In-Kind |
| Provide Oversight, Direction, and Coordination for Work Groups and WRAP Staff and Their Projects and Tasks | Arrange and Schedule Meetings as NeededTimely Completion of Workplan Tasks | On-going As Needed | In-Kind |
| Conduct Periodic Interaction with Work Group Co-Chairs and Membership, and Contractors Performing Support Tasks | TSC Co-Chairs and WRAP Staff Participation in Work Group and Contractor Calls and MeetingsWork Group Co-Chairs Participation and Report-outs at TSC Calls and Meetings.TSC, Work Group Co-Chairs, and WRAP Staff Participation in Technical Planning Meetings | On-going Monthly and as NeededSpring and Fall Technical Planning Meetings  | In-Kind |
| Work with Work Group Co-Chairs to update Work Group Memberships as Needed | TSC and Work Group Co-Chairs and WRAP Staff Ensure Work Group Memberships Are Filled and Up to DateBoard Approves Work Group Co-Chairs, TSC Approves Work Group Membership | On-going Annually and As Needed | In-Kind |
| Develop draft 2020 Workplan and Review Work Group draft 2020 Workplans, Budgets, Projects, and Deliverables | Draft 2020 WRAP Workplan | October-December 2019 | In-Kind |
| Design and Bring the Regional Technical Center (RTC) On-Line | RTC is operational | December 2018 | In-Kind |
| Coordinate with WESTAR Committees and Work Groups to Ensure WRAP Workplan Provides Needed/Requested Support | TSC Co-Chairs and WRAP Staff Participation in WESTAR Committee and Work Group Calls and Meetings | On-going Monthly and As Needed | In-Kind |
| Leverage Work of Other Partner Organizations, Network with Other Organizations with Common Interests and Needs | TSC, Work Group Co-Chairs, and WRAP Staff Conduct Outreach, Host and Attend Technical Conferences and Produce Topical White Papers | On-going, As Needed | In-Kind |
| Conduct Comprehensive Budget Tracking for Operations and Technical Analysis Activities for the WRAP Board, Managing Expenditures and Anticipating Funding Needs  | TSC Co-Chairs and WRAP Staff Participation in WESTAR Committee and Work Group Calls and Meetings, TSC Calls and Meetings, WRAP Work Group Calls and Meetings, Calls and Meetings of WRAP Administrative Subcommittee on Funding  | On-going Quarterly and As Needed | In-Kind |
| Work with TSC to update Memberships as Needed | TSC Co-Chairs and WRAP Staff Ensure TSC Memberships Are Filled and Up to DateBoard Approves TSC Co-Chairs and Membership | On-going Annually and As Needed | In-Kind |
| Reporting | Progress Reports and Recordkeeping Occur Regularly | On-going As Needed | In-Kind |
| Provide Monthly Status Updates to Board of Work Group Progress and Activities Conducted Under Grants, Cooperative Agreements, and WRAP Projects | TSC Co-Chairs and WRAP Staff Participation in Monthly Board Calls and at Spring and Fall WRAP/WESTAR Business Meetings | On-going Monthly  | In-Kind |
| Provide Funding/Budget Updates for WRAP Activities  | WRAP Staff Provide Budget Reports to WRAP Administrative Subcommittee on Funding and WRAP Board, then share with TSC and Work Groups at Calls and Meetings | Quarterly | In-Kind |
| Reports to Board Linking Work Products and Progress | WRAP Staff & TSC presentations | Semi-Annual at WESTAR and WRAP meetings | In-Kind |
| Post Board-Approved Workplan and Status Reports of WRAP Work Group and Projects to WRAP Website | WRAP Staff and Contractors Post to WRAP Website | On-going As Needed  | In-Kind |

Appendix A, Attachment 1

**WRAP Organizational Structure[[15]](#footnote-15)**

Membership in the WRAP is open to all states, federally recognized tribes, and local air agencies located in the geographical region encompassed by the states of: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming. Membership in the WRAP is also open to the US Forest Service, National Park Service, Bureau of Land Management, Fish and Wildlife Service, and U.S. EPA. In order to become a recognized member of the WRAP, eligible states, tribes, local air agencies, and federal agencies shall submit an official letter to the WRAP requesting membership and designating primary and secondary contacts for the jurisdiction or agency. Any tribe, state, or local air agency in the WRAP region may participate in the WRAP; however, for membership/Board matters brought to a vote, recognized membership is needed.

In order to accomplish the objectives of the WRAP the WRAP structure is organized as follows:

WRAP Board of Directors

The WRAP [Board of Directors](http://www.wrapair2.org/WrapBoard.aspx) consists of five state, five tribal, five federal and two local air agency representatives. The Board of Directors acts on behalf of all WRAP members. The WRAP’s purposes, activities, powers, and duties of the Board of Directors are described in the [WRAP Charter](http://www.wrapair2.org/pdf/WRAP%20Charter%20approved%20by%20the%20WRAP%20Membership%20July%202014.pdf), last amended in July 2014. From the Charter, the Board of Directors provides overall policy direction to the WRAP by accomplishing the following:

* Work with WRAP staff to solicit and accept funding for continued efforts under current activities and projects described in this Workplan, as well as the likely addition of new or expanded activities or projects;
* Sustaining the membership and providing oversight for the activities of the Technical Steering Committee;
* Provide oversight for WRAP Staff as described in the Charter;
* Establish Work Groups, Subcommittees, and Project Teams as recommended by WRAP Staff and the Technical Steering Committee for the effective coordination of WRAP initiatives;
* Review and approve Workplans developed by the Technical Steering Committee;
* Ensure appropriate stakeholder participation in WRAP processes through coordination with the WRAP Staff and Technical Steering committee; and
* Initiate membership meetings twice a year or as necessary to oversee the general direction of the WRAP.

The WRAP Board resolves all issues on a consensus basis. The WRAP Board may vote on administrative matters when consensus cannot be reached. Consensus has the following parameters:

* Consensus is agreement.
* Consensus is selection of an option that everyone can live with.
* Consensus may not result in the selection of anyone’s first choice, but everyone is willing to support the choice.
* Consensus is not a majority vote.

WRAP Technical Steering Committee

The WRAP Board formed the [Technical Steering Committee](http://www.wrapair2.org/pdf/WRAP%20Technical%20Steering%20Committee%20Description%20Oct%2013_2015%20approvedby%20Board.pdf) (TSC) in Fall 2015 to organize, direct, and coordinate WRAP project activities and Work Groups listed under the topical issues identified in the Annual WRAP Workplan, as well as to hold the lead responsibility for the WRAP Workplan, including progress reporting and budget tracking for the Board (see Appendix B: Technical Steering Committee Description). The WRAP TSC accomplishes the following:

* Work with the WRAP Board to establish the topical WRAP Work Groups by designating the WRAP. Work Group Co-Chairs to be approved by the WRAP Board.
* Work with the WRAP Work Group Co-Chairs to identify and approve Work Group members.
* Oversee the preparation of a calendar year annual workplan and budget for Board approval.
* Maintain the WRAP process through:
	+ Open and transparent communications, including periodic meetings, conference calls and documentation;
	+ Completion of deliverables that support the common needs of the WRAP membership and avoid duplication;
	+ Pursuing opportunities to leverage multi-agency resources to accomplish larger projects; and
	+ Providing TSC leadership on behalf of the Board to enable Work Groups and specific Project Teams to implement and track work under the Annual Workplan.
	+ Coordinating with WESTAR committees and work groups to ensure activities conducted in WRAP projects, under the auspices of the TSC and WRAP Work Groups, provide needed support.

WRAP Staff

The WRAP Staff provide full-time technical leadership support as well as significant experience and expertise. As time and funds permit, the WRAP Staff work on technical projects with the TSC and Work Groups. The WRAP Staff accomplishes the following:

* As time and resources permit, support each Project Team of the TSC and Work Groups in completing the mission of the team. The WRAP Staff may retain outside contractors for support on specific projects;
* Seek out funding opportunities that align with the WRAP Board of Directors overall policy direction and bring these opportunities to the attention of the WRAP Board and TSC for consideration;
* Work with the TSC and Board of Directors to ensure timely submittal of grant applications;
* Track all current and any new WRAP activities and projects to assist the Technical Steering Committee, Work Groups, Subcommittees, and Project Teams, for periodic WRAP Board reporting;
* Consider the technical tools needed to assist the WRAP membership in making use of WRAP products and reports by conducting an annual needs assessment for WRAP membership;
* Improve communications among the WRAP membership by organizing WRAP meetings with input from the TSC and Board and conducting periodic conference calls with the TSC, Work Groups, Board and membership;
* In accordance with the direction of the WRAP Board, maintain a strategic plan and update the Annual Workplan for WRAP Board review and approval; and
* In coordination with the TSC, review available funding, WRAP membership needs and prioritized projects to produce reports and white papers outlining future technical needs and needed funding.

Administrative Subcommittee on Funding

The WRAP Board formed a four-member Administrative Subcommittee on Funding in the spring of 2017 to identify funding mechanisms to implement the WRAP Workplan. The membership is comprised of one state, one tribal, one local Board Member and one EPA representative. WRAP staff and TSC Co-Chairs attend Subcommittee meetings and provide reports and recommendations on funding needs and resources. The Subcommittee met regularly in 2017 and was successful in identifying the needed funding for WRAP operations and projects to proceed over the near term. In 2018-2019 the Subcommittee will meet at least two times per year.

WRAP Work Groups

Under WRAP Board approval, topical work groups were established in the 2016 WRAP Workplan and continue through this 2018-2019 Workplan. There are five WRAP Work Groups: Regional Haze Planning (RHPWG), Fire and Smoke (FSWG), Oil and Gas (OGWG), Regional Technical Operations (RTOWG), and Tribal Data (TDWG). With oversight by the TSC, WRAP Work Groups are charged with identifying annual priorities and work tasks to complete objectives in Board-determined topical work areas.

WRAP Work Group Co-Chairs are determined by the TSC and approved by the WRAP Board to lead and execute the Work Plan objectives associated with the individual Work Group. Work Group Co-Chairs work with the TSC to identify Work Group members who have applicable expertise related to that Work Group, seeking appropriate representation from the WRAP membership (states, tribes, locals, FLMs) to the greatest extent possible. WRAP Work Group membership will be composed of representatives from WRAP member agencies. Work Group membership is to be approved by the TSC. The Work Group Co-Chairs may include participation from other WRAP member agencies. The Work Group Co-Chairs will consult with the TSC for participation from non-member agencies, industry, and environmental stakeholders. These participants beyond the core Work Group membership will be considered advisors.

WRAP Work Groups work with the TSC on development of individual Work Group Workplans that will describe the detailed tasks and activities to meet Annual WRAP Workplan objectives, including incorporation of applicable WRAP projects (see WRAP 2016 Workplan, Appendix B - Work Group Workplan Template[[16]](#footnote-16)). Work Group Workplans will be submitted by the TSC to the WRAP Board for approval. Individual 2018-2019 Work Group Workplans are found in Appendices B-F of this 2018-2019 WRAP Workplan.

Work Group Subcommittees

Work Groups may, with approval of the TSC and WRAP Board, form Subcommittees to address specific tasks or work areas that would benefit from concentrated effort by a smaller number of individuals. For example, to meet the objectives of the 2018-2019 WRAP Workplan, the RHPWG has formed five Subcommittees: Consultation and Coordination, Shared Database, Emissions Inventory and Modeling Protocol, Monitoring and Glide Path, and Control Measures.

Work Group Subcommittee membership will be composed of representatives from WRAP member agencies, and Work Groups will strive to create as balanced representation as possible in line with the WRAP partnership goals (i.e. states, tribes, federal land managers, local air agencies and the U.S. EPA). Work Group Subcommittee membership is to be approved by the TSC. The goal of the RHPWG Subcommittees is to define planning needs and coordinate work internal to the RHPWG and with other WRAP Work Group to complete studies and work products in a timely manner.

WRAP Project Teams

Under the leadership of the Technical Steering Committee, Work Groups, WRAP Staff, and ultimately the WRAP Board, needed Project Teams will be identified and included in the Annual Workplan process. The TSC and/or Work Groups will be responsible for managing the Project Teams, which are intended to enable non-members of WRAP to express interest and sponsor analysis or planning projects within the scope and topics of the WRAP Charter and Strategic Plan. The Project Teams will be associated with a discrete, defined project for which the non-member sponsor is providing funding and expertise resources. The Project Teams are intended to allow sponsor participation and will include members of WRAP Work Groups and TSC, WRAP Staff, and non-member sponsors. The TSC will define the scope and membership, and duration of each Project Team, and include that information in the Annual Workplan. Currently, the WRAP has one recent active Project Team, the Study Management Team for the [Drill Rig 1-hour NO2 Collaborative Study](http://www.wrapair2.org/DrillRig.aspx).

Appendix B

##### **Regional Haze Planning Work Group 2018-2019 Workplan**

(Reviewed by RHPWG in \_\_\_\_\_ 2019)

###### Purpose

The purpose of the WRAP Regional Haze Planning Work Group (RHPWG) is to prepare the framework to support regional planning for the 15 western states, so that needed elements will be available for Regional Haze State Implementation Plan (RH SIP) preparation. The tasks are delineated and scheduled preparation to meet the July 2021 deadline for submittal of RH SIPs to the U.S. EPA for the second planning period of the federal Regional Haze Rule (RHR). The RH SIPs are plans to continue improvement in visibility in the 118 Class I areas of the WESTAR-WRAP region for the second planning period ending in 2028. There are elements in the RHR, which require regional planning and interstate coordination and consultation, as well as consultation with the Federal Land Managers (FLMs) and affected Tribal Nations in the western U.S., including Alaska and Hawaii. Regional Haze SIP (RH SIP) preparation is a multi-year effort and must incorporate time for the required consultation and public review processes.

 In 2017[[17]](#footnote-20), the RHPWG developed a prioritized schedule of regional tasks, beginning in 2017 and continuing through the first quarter of 2020 based on the RHR[[18]](#footnote-21) requirements, and the July 2016 draft EPA guidance[[19]](#footnote-22). This schedule assures that the needed regional technical analysis will be completed in time to accommodate states planning early submissions and for the different mandated federal and state public review procedures, prior to submittal to the U.S. EPA. Additional tasks refer to individual state schedules, which include RHR-required consultation with Federal Land Managers (FLMs), States, and coordination with Tribes, which the WRAP also supports.

The RHR does spell out the basic SIP requirements with which to start planning. However, in January 2018, U.S. EPA announced their intention to revisit aspects of the 2017 rule revision. Initially, the western states plan to follow the elements of the final rule and draft guidance from U.S. EPA for RH SIP preparation. The RHPWG, in conjunction with the TSC and other Work Groups, will conduct a mid-course review to reflect any future revisions to the RHR and draft guidance, to identify any additional tasks associated with rule changes and final implementation guidance, and identify planning tasks for which additional funding must be sought. On September 11, 2018, U.S. EPA released a memorandum with a road map and schedule for finalizing guidance.[[20]](#footnote-23) The *Roadmap* indicated that U.S. EPA would split roll-out of final guidance into three implementation tools, relevant to tasks that the Regional Haze Work Group already had underway.

On December 20, 2018, U.S. EPA released a Memorandum that finalized its technical guidance on the first tool: tracking visibility progress for the second implementation period of the regional haze program.[[21]](#footnote-24) This guidance document included EPA's final recommendations on 1) methods for selecting the 20 percent most impaired days to track visibility and determining natural visibility conditions; and 2) methods for accounting for total international impacts to adjust the uniform rate of progress (i.e., the URP of the Glide Path) for the second implementation period. As the document explained,

“...[it] is not a substitute for provisions or requirements of the Clean Air Act (CAA), nor is it a regulation itself. As the term "guidance" suggests, it provides recommendations on how to implement regional haze rule visibility tracking metrics. Thus, it does not impose binding, enforceable requirements on any party, nor does it assure that EPA will approve all instances of its application, as the guidance may not apply to a particular situation based upon the

circumstances. Final decisions by EPA regarding a particular SIP demonstration will only be

made based on the statute and applicable regulations and will only be made following a final

submission [sic] by air agencies and after notice and opportunity for public review and comment.”

Therefore the RHPWG is continuing with only slight modifications to tasks and schedules in the Work Plan, based on work started in 2018 and to be completed or initiated in 2019.

The RHPWG The RHPWG has with identified and prioritized SIP preparation tasks and deliverables, and is identifying possible resources needed to complete them. General RH SIP preparation includes analyzing IMPROVE monitoring data to determine visibility trends; coordinating inventories for each state, tribe and federally managed area for modeling input; analyzing emissions trends and source categories to identify potential control targets; differentiating anthropogenic and natural visibility impacts; modeling for baseline and future years in order to develop reasonable progress goals for each Class I areas; modeling to identify potential sources impacting visibility; consultation with FLMS, states, and tribes throughout the process; and special studies as needed to further these overarching responsibilities.

Critical to the successful preparation of RH SIPs is continued update and maintenance of the WRAP Technical Support System (WRAP TSS) which stores the publicly accessible planning data; and utilization of the Fire Emission Tracking System (FETS), California’s Prescribed Fire Incident Reporting System (PFIRS), and the federal INCIWeb for identifying smoke events. Special studies might address administrative issues such as SIP preparation training; fluctuating emissions; evolving smoke management programs; the full range of oil and gas activities; electrical/industrial power generation; international emissions and transport; and interstate goods movement. All of these known and potential RH SIP preparation needs underscore the importance of integrating the activities of the different WRAP Work Groups.

Regional modeling and analysis will identify current emission conditions and the resulting visibility impairment, as well as estimate future scenarios and the effectiveness of potential additional controls. This analysis will also be used to assist states in setting their reasonable progress goals for 2028 at each Class I area for the next progress period. The 2014 National Emissions Inventory (NEI)-based data with western regional improvements will provide the initial basis for the emissions that are used in the regional modeling but a U.S. EPA 2016 modeling platform will also be evaluated. Additional inventory efforts will be conducted as the states identify sectors that need refinement to better reflect actual conditions in the west. Emissions will be projected to reflect the 2028 milestone year for use in State RH SIPS, and Tribal TIPS. This Workplan also recognizes that Alaska and Hawaii are outside the regional modeling domain and require additional support.

##### **RHPWG Status Report for 2017 Workplan**

In 2017, the RHPWG identified the groundwork for the regional tasks supporting the development of RH SIPs. Members participated in a series of webinars designed to illustrate how needed information is assembled to meet SIP requirements. The RHPWG also participated in a three-day long kick-off workshop with other regional planning organizations or multi-agency planning organizations from across the United States. WESTAR previously prepared a document entitled “WESTAR Regional Haze 2018 SIP Update Plan,” dated April 2, 2014, which describes a scheduled set of tasks and deliverables needed for production of the RH SIPS for the second planning period. The RHPWG is updating this WESTAR document, now called “WESTAR 2021 RH SIP Update”, to guide those not familiar with SIP preparation, and to demonstrate how states and others can work together to complete RH SIP elements, based on experiences from the first planning period. The Work Group formed six subcommittees to prepare western protocols and work on topical issues as needed for specific Regional Haze SIP development tasks, whether performed in-kind or through contract services. The table below summarizes progress by the RHPWG on elements of the 2017 WRAP Workplan and identifies elements that remain outstanding.

| Task | Progress | Outstanding Work |
| --- | --- | --- |
| I. RHPWG Management |
| Roles and Responsibilities of Work Group Members | Completed by forming six Sub-Committees for RHSIP preparation needs: Consultation and Coordination; Shared Database Construction; Emissions Inventories; Monitoring Analysis and Glide Slope; Control Measures; and Modeling Protocols | Continue Implementation to (1) develop regional protocols; (2) perform in-kind work; (3) coordinate with other Work Groups on relevant tasks: (4) to assist with development of contract work and review of deliverables; and (5) to keep RH SIP preparation on schedule. |
| Conference Call Schedules | Completed: Held 6 conference calls during 2017 | Continue Implementation |
| Interaction with TSC and Other Groups | Ongoing: Joined several of the other groups' conference calls to discuss updates and needs. Two in-person meetings, WRAP Technical Planning Meeting, and Western and National Regional Haze Planning Workshop in the Fall of 2017. Briefed WESTAR and WRAP Boards at Spring and Fall meetings.  | Continue Implementation |
| Communication and Documentation | Ongoing | Continue Implementation |
| II. Scoping Tasks for 2017 WRAP Work Plan Elements |
| Survey Individual State Needs and Collate Results | Completed: Survey results were distributed to the Work Group, TSC, and WRAP Board | Survey for Task input, as needed. |
| Determine Training Needed for Writing RH SIPS | Nearly Completed: A series of five teach-in webinars were held during the second half of 2017. Each one focused on a different aspect of preparing a Regional Haze SIP. | There may be additional training needed because the EPA is revisiting the revised rule and has not finalized the draft guidance. Training also anticipated for the shared database system. |
| Identify Regional and State Responsibilities from the January 10, 2017 Rule | In Progress: There is still some uncertainty as to how much in-kind work needs to be done with the modeling. States have contributed funds to do regional modeling, but there will likely need to be additional in-kind support. | The rule is being reconsidered so we may need to reevaluate responsibilities.After the RHPWG determines what can be done by a consultant, then we can assign the remaining tasks. |
| Identify further Regional and State Responsibilities for the second planning period (RH SIPS due in 2021 setting the 2028 Reasonable Progress Goals) depending on pending US EPA guidance on RH SIP implementation | No guidance issued in 2017. | EPA announced the revisiting of rule and guidance in January 2018. The RHPWG will continue with work required by January 2017 rule revision, in the absence of further clarification.  |
| Use the WESTAR Regional Haze 2021 SIP Update Plan as a means to identify tasks and processes for the 2017 WRAP Work Plan and subsequent years | Draft Completed: The Regional Haze 2021 SIP Update Plan is a work in progress and will be updated as needed.  | Continue Updates |
| Order SIP tasks by Priority on a Preliminary Multi-Year Timeline (can utilize Gantt Chart in Appendix B of the WESTAR Regional Haze 2018 SIP Update Plan as starting point) | Completed: Refer to the Gantt Chart | Continue Implementation |
| Develop Regional Haze 2021 SIP Update Protocol using the WESTAR Regional Haze 2018 SIP Update Plan; the Regional Haze Rule effective January 10, 2017; and the pending US EPA Guidance for RH SIP Implementation as guides | First Draft Completed; Second Draft in progress  | Some sections to reflect rule revisions and proposed guidance have been added and are not complete. As changes are made, tasks may need to be updated as well. |
| III. Preparing SIP Work Plan Elements (prioritize 2017- 2018 time frame) |
| Evaluate Inventory Issues (what’s available, what improvements are needed, for which years) | Nearly Completed: There has been extensive discussion regarding whether states should use the 2014 NEI or a 2016 inventory. The general thought is that we should use 2014 because a 2016 inventory will not be ready in time. States will likely use 2014. | After further evaluation at the beginning of 2018 consensus will be reached on which inventory year to use. The base year inventory needs to be gridded and fed into the base year model performance testing. |
| Develop Emissions Inventory projection protocol, to forecast 2028 | Incomplete | This task has not been done yet. |
| Evaluate TSS Existing Monitoring Data Functionalities and Future Needs (coordinate with RTOWG) | Incomplete and in progress | The TSS needs updates, especially to allow monitoring data to be sorted by most impaired days. Revisit addition of Site-Specific Rayleigh scattering. |
| Evaluate Modeling Needs (base year, 2028, and RPG) (for meteorology and for gridded emissions inputs) | Complete from the standpoint of the RHPWG. | This is a task that the RTOWG should continue. States will give input to scenarios for additional control scenarios in 2018, beyond on-the-books and on-the-way  |
| Coordinate with USEPA Modeling (adjustments needed to make it useful for western states) | In progress by RTOWG | WRAP is coordinating efforts with USEPA for 2016 modeling using national 2016 ozone modeling platform. |
| Initiate Early Consultation with Federal Land Managers (initial discussion of monitoring and emission trends) | Completed: FLMs included in Work Group; informal caucus December 2017. | Ongoing: The conversations and consultation need to continue throughout the process. |
| Evaluate Protocol for Monitoring Data Analysis (Species separation into U.S. Anthropogenic, Natural, and International Anthropogenic) | In progress: Arizona staff used FED to prepare a significant amount of monitoring analysis and have shared it with the other western states. | The analysis needs to be further refined. States need to reach consensus on a protocol for separating U.S. Anthropogenic, Natural, and International Anthropogenic emissions. The EPA guidance on this is still in draft form. We can use the guidance or try to create our own metric. |
| Coordination with FSWG for Fire & Smoke Quantification (for modeling inputs and for monitoring data analysis) | Ongoing | We have had initial discussions only. Coordination will be ongoing. |
| Protocol for Identifying “Natural Smoke” or “Wildland Fire” Days, to be differentiated from “Anthropogenic Fire" days. | In progress | This is part of the task to Evaluate a Protocol for Monitoring Data Analysis. Should be coordinated with Fire & Smoke Work Group. |
| Protocol for Identifying International Emissions (natural and anthropogenic) | In progress. EPRI preparing an international emissions inventory and forecast for 2016 ozone modeling that may be useful if completed in time. | This is part of the task to Evaluate a Protocol for Monitoring Data Analysis |
| Protocol for Identifying/Quantifying “Dust Days” | In progress | This is part of the task to Evaluate a Protocol for Monitoring Data Analysis |
| Protocol for Identifying/Quantifying “Volcanic Days” | In progress: Hawaii developed useful sulfate species comparative analysis, which might have applicability to unique situations in other states.  | This is part of the task to Evaluate a Protocol for Monitoring Data Analysis |
| Initial Control Strategy Analysis based on Inventory Analysis and Growth Potential (are there critical source categories in the West) | In progress: There have been initial discussions on Control Strategy Analysis. | States will need to complete source analysis individually, but may develop clearinghouse of control techniques. Also need to prepare OTB-OTW scenario for initial 2028 forecast. |
| Determine Special Analysis Needs requiring Contractor Assistance | Ongoing: Initial indication of special analysis needs for Alaska and Hawaii identifying natural and international anthropogenic sources and quantifying impacts for Alaska and Hawaii in base year and 2028. | Differentiating State, Fed, and Tribe in-kind work and needs for contractor service. |
| Differentiate and Schedule State and Regional SIP Tasks | Complete: Based on the 2021 SIP Plan Update | Determining in-kind and contracted work. |
| Progress Report Analysis (identify regional vs. state needs) | Not Started | Need to identify how Progress Reports will be rolled into the 2021 SIPS. |
| IV. RHPWG Administration |
| Determine how and when co-chairs are appointed | Complete | Formalize process for replacement, when needed~~?~~ |
| Time commitments for all participants | Complete | Integrate work of Subcommittees |
| Development of budgets for projects | In progress | Projects have been outlined and rough budgets assigned by TSC. More detail in the budget as we further define the projects. |
| Write RHPWG portion of 2017 WRAP work plan (continue for subsequent years, as needed) | Complete | Continue Implementation |
| Deliverable Products Distributed to States or posted to WRAP website as appropriate | Complete: All products were distributed through each State's primary and secondary contacts | Continue Implementation |

##### **RHPWG Status Report for 2018-2019 Workplan**

In 2018, the RHPWG began regional tasks supporting the development of RH SIPs. WESTAR previously prepared a document entitled “WESTAR Regional Haze 2018 SIP Update Plan,” dated April 2, 2014, which describes a scheduled set of tasks and deliverables needed for production of the RH SIPS for the second planning period. In 2017, the RHPWG started updating this WESTAR document, now called “WESTAR 2021 RH SIP Update,” to guide those not familiar with SIP preparation, and to demonstrate how states and others can work together to complete RH SIP elements, based on experiences from the first planning period. This task was set aside, because some of the remaining text depended on the tasks undertaken by RHPWG Subcommittees, and pending additional guidance from the U.S. EPA. In 2017, the Work Group co-Chairs solicited membership in six subcommittees to prepare western protocols and work on topical issues as needed for specific Regional Haze SIP development tasks, whether performed in-kind or through contract services. In 2018, the Emissions Inventory and Modeling Protocol Subcommittee was merged into one subcommittee since they contained essentially the same members, with specialized expertise. The table below summarizes progress by the RHPWG on elements of the 2018 WRAP Workplan and identifies elements that remain outstanding.

| Task | Progress | Outstanding Work |
| --- | --- | --- |
| I. RHPWG Management |
| Roles and Responsibilities of Work Group Members | State Leads chosen for Five Sub-Committees for RH SIP preparation needs: Consultation and Coordination; Shared Database Management; Emissions Inventories and Modeling Protocols; Monitoring Analysis and Glide Slope; and Control Measures; Provide Updates and Revisions to WRAP Work Plan | Continue Implementation to (1) develop regional protocols; (2) perform in-kind work; (3) coordinate with other Work Groups on relevant tasks: (4) assist with development of contract work and review of deliverables; and (5) keep RH SIP preparation on schedule. |
| Conference Call Schedules | Completed: Held 5 bi-monthly conference calls during 2018; Subcommittees met either monthly or biweekly by conference call, depending on task requirements; one in-person meeting with the other Work Groups and the TSC in December 2018; began Subcommittee Lead and Co-Chair check-in conference calls to cross-pollinate and plan upcoming conference calls.  | Continue Implementation; decided to go to monthly conference calls in 2019, blended with special Webinars hosted by Subcommittees to explain deliverables to entire Work Group; Need to find “storage” location for draft Working Papers accessible to each Subcommittee member, prior to roll-out to the larger Work Group and TSC |
| Interaction with TSC and Other Groups | Ongoing: Joined several of the other Work Groups' conference calls to learn progress or participate in task work. One in-person meeting with conference call attendance, as needed, in (December 2018 - WRAP Technical Planning Meeting); Briefed WESTAR and WRAP Boards at Spring and Fall meetings.  | Continue Implementation |
| Communication and Documentation | Ongoing; Agendas, Conference calls Notes, and Webinars posted to WRAP Websites for Work Group and Five Subcommittees | Continue Implementation; Post Subcommittee White Papers to Docket after reaching Work Group consensus |
| II. Scoping Tasks for 2017-2018 WRAP Work Plan Elements |
| Survey Individual State Needs and Collate Results | Completed: Survey results were distributed to the Work Group, TSC, and WRAP Board in early 2017. | TSC conducted an additional SIP Readiness Survey at end of 2018 |
| Determine Training Needed for Writing RH SIPS | Webinars completed: Progress Report on Shared Database (TSS v.2); Alternative model SCHICHEM for source visibility impact; EPRI International Emissions contract progress | There may be additional training needed has only partially after EPA rolls out Roadmap items; as follow-up to previous training for new SIP writers; as Task Deliverables are rolled out. |
| Identify Regional and State Responsibilities from the January 10, 2017 Rule | In Progress: U.S. EPA announced in the RoadMap they do not plan to change the RHR for this planning period. Current role of Subcommittees is to provide White Papers as “how-tos” for State SIP writers. Contractors primarily for Database and Modeling, but other potential contractor needs identified, pending funding priorities.  | There is still some uncertainty about shared Subcommittee and shared Work Group responsibilities; Emissions forecasting will become consultant task. Some jump-start work for 4-factor Source Selection. Progress report tasks shifted to states using TSS v.2. Need database or list of BART completions and reductions for states to share. - Need input from TSC on overall budget to help with prioritizing contracted work. |
| Identify further Regional or Contractor or State Responsibilities for tasks for the second planning period on a timely basis (RH SIPS due in 2021 setting the 2028 Reasonable Progress Goals)  | One U.S. EPA Road Map item delivered in 2018 regarding non-regulatory guidance on the “Most Impaired Days” (MID) selection and 2064 endpoint adjustments for international contributions released December 2018.  | In 2019, expecting further guidance on Natural Conditions re-analysis and 2028 modeling per U.S. EPA Road Map  |
| Use the WRAP Work Plan as guide for RH SIP preparation (as opposed to the draft WESTAR 2021 SIP Update)  | WESTAR Regional Haze 2021 SIP Update is a work in progress and will be updated as needed. RHPWG follows the WRAP 2018-2019 Work Plan (with mid-course review and revisions as revisited herein.  | Focus on Work Plan tasks; finish WESTAR SIP update if needed, as training tool; Some SIP tasks may be “removed” from Work Plan if states can do them on their own with no regional support or guidance |
|  |  |  |
|  |  |  |
| III. Preparing SIP Work Plan Elements (prioritize 2019 time frame) |
| Act on identified Inventory Needs  | Using 2014 as Base Year for Regional Haze planning; may be able to use U.S. EPA 2028 outputs for comparison; Finalized for gridding in February 2019  |  The 2014 base year inventory needs to be gridded and fed into the base year model performance testing. Pick averaging years/emissions for Fire emissions, O&G emissions and EGU emissions. May be able to utilize EPRI international emissions forecast for 2028 modeling and for informing 2064 endpoint “adjustment”; Alternative Forecasts and final scenarios later in 2019 |
| Develop Emissions Inventory projection protocol, to forecast 2028 | Incomplete | This task remains to be completed. |
| Coordination with FSWG for Fire & Smoke Quantification (for modeling inputs and for monitoring data analysis) | Ongoing on listening only basis | F&S WG Report due out in February. Better coordination needed to discuss “Multi-year averaging” decisions and use of prescribed fire impacts at 2064 endpoint |
| Evaluate TSS Existing Monitoring Data Functionalities and Future Needs (coordinate with RTOWG) | Two tools have been developed and are being refined. Site-specific Rayleigh scattering has been added to the data.; Monitoring Date almost complete | Further refinements to the tools are ongoing. Emissions and Modeling input in 2019. |
| Evaluate Modeling Needs (base year, 2028, and RPG) (for meteorology and for gridded emissions inputs) | Need to work more closely with RTOWG. | This is a task that the RTOWG should continue. States will give input to scenarios for additional control scenarios in 2019, for base case modeling and for beyond on-the-books and on-the-way  |
| Coordinate with U.S. EPA Modeling (adjustments needed to make it useful for western states) | In progress by U.S. EPA; RTOWG assisting. | WRAP is coordinating efforts with U.S. EPA for 2016 modeling using national 2016 ozone modeling platform. RHPWG needs better understanding of usefulness for Regional Haze planning |
| Decide how MIDs will be selected during modeling phase | Subcommittee proposes using US EPA recommended method – based on White Paper evaluating wide range of alternatives. | Learn how MIDs are selected from Modeling Results, including how/if relative Response Factor will be employed  |
| Initiate Early Consultation with Federal Land Managers (initial discussion of monitoring and emission trends) | Consultation and Coordination Subcommittee provides White Paper for framework; States, Tribes, and FLM involved in production as subcommittee members.  | Ongoing: Coordination and consultation continued through four planned topical webinars on SIP preparation tools (deliverables) as focus |
| Evaluate Protocol for Monitoring Data Analysis (Species separation into U.S. Anthropogenic, Natural, and International) | Arizona staff developed Excel worksheets and Montana developed R alternatives analysis sheets for State SIP writers to use to select MIDs and to analyze what drives haze on Most Impaired Days. MD&GP subcommittee prepared Draft Work Paper; Contractor working on data patching and substitution necessary for complete years for trend analysis. | Remaining Tasks need better clarification between state responsibilities and contractor assistance. U.S. EPA Road Map un-released guidance for determining Natural Conditions may affect remaining Two major tasks: Redo Natural Conditions and Adjust Glide Slope  |
| Coordination with Oil & Gas Work Group for preparation of base year and 2028 forecasts and for control measure analysis | 2014 base year inventory progress through Emissions Inventory and Modeling Protocol Subcommittee | Expect work to be completed on 2028 inventory and on potential control measures or emissions reductions, relying on O&G Work Group Tasks. |
| Protocol for Identifying “Natural Smoke” or “Wildland Fire” Days, to be differentiated from “Anthropogenic Fire" days. | Tested EPA recommended metric on representative sites and evaluated alternatives; Fire&Smoke Work Group developed method for calculating emissions for base year modeling and gave all states opportunity to review, comment, and/or change. | Use 95th percentile for ID selection for modeling, although states can demonstrate other alternatives if decide to use different RPGs than those modeled or need to explain very different wildfire patterns, |
| Protocol for Identifying International Emissions (natural and anthropogenic) | In progress. EPRI preparing an international emissions inventory and forecast for 2016 ozone modeling that may be useful if completed in time. | This is part of the task to Evaluate a Protocol for Monitoring Data Analysis at baseline and at endpoint |
| Protocol for Identifying/Quantifying “Dust Days” | Tested EPA recommended metric on representative sites and evaluated alternatives; | This is part of the task to Evaluate a Protocol for Monitoring Data Analysis White paper recommends using EPA suggested method |
| Protocol for Identifying/Quantifying “Volcanic Days” | In progress: Hawaii developed useful sulfate species comparative analysis, which might have applicability to unique situations in other states.  | This is part of the task to Evaluate a Protocol for Monitoring Data Analysis; Hawaii may develop this independently |
| Initial Control Strategy Analysis based on Inventory Analysis and Growth Potential (are there critical source categories in the West) | White Paper on suggested protocol for screening sources for 4-factor analysis; Consultant assistance suggested for Q/d analysis. There have been initial discussions on Control Strategy Analysis. Looked at potential modeling means for determining visibility impacts. | States will need to complete source analysis individually, but will have Q/d provided by contractors; Subcommittee may develop clearinghouse of control techniques or point to existing references. States need to prepare OTB-OTW scenario for initial 2028 forecast; joint work with Emissions and Modeling tasks. Further discussion of visibility impact factor in Reasonable Progress analysis – states not unified in position; some ambivalent; others very interested |
| Differentiate and Schedule State and Regional SIP Tasks | Ongoing; depends on urgent needs from all or most of states and available funding | Overwhelming need for contractor assistance with 2028 forecasts by most states |
| Determine Special Analysis Needs requiring Contractor Assistance | Ongoing: Initial indication of special analysis needs for Alaska and Hawaii identifying natural and international anthropogenic sources and quantifying impacts for Alaska and Hawaii in base year and 2028. | Differentiating State, Fed, and Tribe in-kind work and needs for contractor service. |
|  |  |  |
| RH SIP “embedded” Progress Report Analysis (identify regional vs. state needs) | Identified what can be done by states using TSS. Not all years inventoried by all states outside NEI years.  | Need to identify which years should be used for averaging monitoring data and for comparing emissions trends (NEI very general); Rule language uses “most recent” data and latest inventory submission. States all submitted initial Progress Reports on different years. May need contractor to maintain list of BART implementation and planned vs achieved reductions in emissions (by December 31, 2017 or 2018?) |
| IV. RHPWG Administration |
| Determine how and when co-chairs are appointed | Commitment through 2019 | Formalize process for replacement, when needed |
| Determine how and when Subcommittee Leads are appointed | Commitment through 2019 | Formalize process for replacement, when needed |
| Time commitments for all participants | Commitments requested for 2018 or 2018 and 2019; Different participation levels: Co-Chair, Subcommittee Lead; Key State Contact: Subcommittee member; Advisor; Listening Mode only. | Better Integrate work of Subcommittees and Work Groups; Commitments for 2019 and 2020 decided by end of January 2019; Improved coordination with co-Chairs and Facilitator |
| Development of budgets for projects | Technical Steering Committee has Lead and Sole Control on budgets; Contractor needs and contract tasks coordinated with subcommittees and sometimes Work Group co-Chairs | Projects have been outlined and rough budgets assigned by TSC. More detail in the budget as we further define the priority tasks |
| Write RHPWG portion of 2019 WRAP work plan (continue for subsequent years, as needed) |  Initial discussion in December 2018; Drafted for 2019 by Mid-January 2019 | Continue Implementation |
| Deliverable Products to be distributed to States or posted to WRAP website as appropriate | Complete: Draft “White Papers” distributed as drafts through Subcommittees, Key State Contacts, or entire Work Group mailing list in preparation for Work Group consensus and docketing per WRAP Council docketing process | Continue Implementation; finish RHPWG consensus and docketing of White Papers when Federal Partners return from furloughs; get clearer reading from TSC on what is meant by “Deliverable Products” by Work Groups vs. consultants work |
| Progress Reports to TSC and WRAP Board | Bi-Annual report to WRAP Board; Monthly Reports to TSC initiated in July | Suggest changes to monthly reporting format to the TSC from the Regional Haze Work Group: current Standard Slide format awkward for number of tasks in progress; not oriented to focus on “key points” for needed discussion |

**Duties and WRAP Staff Support**

In consultation with the Co-Chairs from the Regional Haze Planning Work Group (RHPWG), the Technical Steering Committee (TSC) will review and seek Board approval of a written workplan to address and include all the elements for each Work Group, specific to RHPWG as described in Section I of the Annual WRAP Workplan. Based on these elements, the RHPWG is then charged with creating detailed workplan inputs to the WRAP annual workplan for achieving these objectives. The RHPWG workplan will include a schedule for progress reports to the TSC ( annual summary) and a schedule for desired project completion. The RHPWG will work with WRAP staff to have agendas and conference call notes posted to the WRAP website. The RHPWG and other Work Groups are responsible for translating technical materials into a form understandable by the TSC, Board, and the general public. The RHPWG has the additional responsibility for ensuring the best information and data are available for visibility protection planning across the region, with WRAP Staff support.

WRAP Staff will provide support for RHPWG calls and meetings. WRAP Staff will assist with arranging and documenting RHPWG calls and meetings; preparing TSC workplan inputs and budgets for review and action; drafting status reports on the RHPWG’s activities; and providing status reports on the deliverables, budgets, and timelines for the WRAP’s technical projects. Per the agreement “Additional Regional Technical Support for WRAP and WESTAR” dated May 8, 2018, Regional Leads have been assigned to work with the RHPWG and the Subcommittees as Facilitators.

**RHPWG Responsibilities and Roles**

The RHPWG will have conference calls scheduled every month in 2019 to manage activities and provide wide dissemination of progress on WRAP projects. These conference calls may include planned webinars. The RHPWG co-Chairs are responsible for developing the RHPWG agendas with assistance from the TSC and the Subcommittee Leads, and for assuring that Notes are taken and reviewed before posting to the website, The RHPWG may have special meetings (e.g. webinars) identified in the annual WRAP Work Plan and by Subcommittees, in addition to conference calls. Routine monthly conference calls can be cancelled or shortened by the co-Chairs, depending on the progress to discuss on tasks. The RHPWG Co-Chairs will plan and direct conference calls, and with assistance from WRAP Staff and the RHPWG Subcommittee Leads, take the lead in communications and other necessary TSC and Board interaction. The RHPWG Subcommittee Leads will be responsible for scheduling conference calls, agendas, and finding note-takers to support accomplishment of tasks assigned to them by the co-Chairs, the TSC, or the TSC Regional Facilitator. The RHPWG co-Chairs and Subcommittee Leads will provide inputs to the TSC for an annual WRAP workplan and budget for Board approval, covering technical projects and Work Group coordination.

**Coordination**

The RHPWG will coordinate with the following work groups, project teams, subcommittees as needed to ensure activities conducted in WRAP projects, and under the auspices of the RHPWG provide needed support:

1. Tribal Data Work Group (TDWG);
2. Regional Technical Operations Work Group (RTOWG);
3. Oil and Gas Work Group (OGWG) and their project teams;
4. Fire and Smoke Work Group (FSWG);
5. WESTAR Regional Haze State Implementation Plan (SIP) preparers group (ad hoc, formed only as needed);
6. WESTAR Planning Committee;
7. WESTAR Technical Committee; and
8. Other groups, subcommittees, or project teams as designated by the Board in the annual Workplan process.

#### RHPWG Co-Chairs and Work Group Members

Initial WRAP RHPWG members were selected from WESTAR Planning and Technical Committee participants based on their past experience preparing their state’s initial Regional Haze Plan or Progress Report. Two state representatives were approved as co-Chairs of the RHPWG in 2016 by the WRAP Board:

Tina Suarez-Murias\*, California Air Resources Board

Jay Baker\*, Utah Department of Environmental Quality

The seminal RHPWG Group began in 2016 with several state members assisted by WRAP and WESTAR staff, as well as Pat Brewer from the National Park Service, who had read and reviewed all of the Regional Haze Plans prepared in the United States. Initially the RHPWG focused on revising the WESTAR SIP Update, pending the release of the final rule revision and guidance from U.S. EPA. After an initial survey of needs, completed early in 2017, it was determined that basic regional haze program training was necessary due to the turnover of knowledgeable staff at the state level. WRAP staff developed and delivered a five-webinar series using experienced RH SIP preparers and contractors to train RHPWG members and other interested parties. RHPWG membership was expanded in the summer of 2017 to include all western state (and local) staff, FLM, Tribal, and U.S. EPA regional contacts who would be associated with RH SIP preparation, to get maximum benefit from the training.

With the increased membership in 2017, the RHPWG co-Chairs were able to assure that there is at least one key contact from each state, assigned and approved by their management, who will be involved in preparing each state’s RH SIP. RHPWG members serve for one year with the option of renewing for following years, with at least one person designated at the Key Regional Haze State Contact from each state at all times. Federal Land Managers and the U.S. EPA are also represented in the RHPWG. Liaisons from each of the other Work Groups and the TSC are invited to listen in or participate in the RHPWG conference calls to encourage the exchange of respective Work Group progress on activities of mutual interest and need. WRAP/WESTAR staff are de facto members of the Work Group. Other Regional Planning Organization representatives are welcome to listen in on the conference calls.

**Relationship between Subcommittees and Tasks**

The nine over-arching tasks of the RHPWG portion of the Work Plan are aligned with RH SIP development. To facilitate the shared workload, and to utilize the diverse technical and policy skills of RHPWG members, the RHPWG co-Chairs created Subcommittees in 2017 and identified Lead individuals in 2018 who focus their specialized expertise on one or more of the over-arching tasks for RH SIP development. State RHPWG members volunteered for specific Subcommittees according to their specialized skills, ideally to work on tasks as “in-kind” support from the states. Local, Tribal, and Federal RHPWG members have also self-selected to join in Subcommittee conference calls and some assist with tasks. The Subcommittee Leads follow the same routine as the co-Chairs in preparing agendas, holding regularly-scheduled calls, assuring that respective conference call notes are checked by subcommittee participants, before assuring notes are posted to the WRAP webpage.

The RHPWG co-Chairs also work with RHPWG Subcommittee Leads and the WRAP Technical Steering Committee members to prioritize tasks and determine whether the task deliverables are prepared by state staff, the WRAP Subcommittee volunteers, or by contractors. Where tasks and subtasks overlap with other Work Groups and RHPWG Subcommittees, the RHPWG co-Chairs and the TSC Regional Leads (Facilitators) assist with developing roles, responsibilities and assignments. Initially the RHPWG co-Chairs split their attendance as participants in Subcommittees, but they now are de-facto participants in all the Subcommittee conference calls, work on all RHPWG administrative tasks, and on some of the Subcommittee tasks. The TSC Regional Leads (Facilitators) also attend all conference calls and some actively participate in the tasks.

The RHPWG Subcommittee Leads were selected by the RHPWG co-Chairs from the state RHPWG participants based on their expertise in the WRAP Work Plan over-arching task focus areas. Given the time commitments, each Subcommittee Lead serves with the approval of their management, to provide “in-kind” work leading the following subcommittees associated with RH SIP preparation:

1. Consultation & Coordination (C&C) --Rebecca Harbage\* (Montana Department of Environmental Quality)
2. Control Measures (CM -- Curt Taipale\* (Colorado Department of Health and the Environment)
3. Emissions Inventory & Modeling Protocol (EI&MP) -- Farren Herron-Thorpe (Washington Department of Ecology)
4. Monitoring Data and Glide Path (MD&GP) -- Ryan Templeton\* (Arizona Department of Environmental Quality)
5. Shared Database Construction (SDb) -- Cindy Hollenberg\* (New Mexico Environment Department)

The subcommittee members will develop needed protocols for all states to follow in preparing RH SIP elements and guide contracted services, in conjunction with the TSC person who manages the contract budget, and evaluate contract deliverables.

\* Also State Key Contacts for Regional Haze

**RHPWG Action Items for 2018 WRAP Workplan**

The table below presents the tasks, deliverables, and schedules identified by the RHPWG necessary to complete the comprehensive SIP revisions and progress reports due July 2021. The table also identifies whether the role of the RHPWG is to track and coordinate (TC) with its subcommittees and other Work Groups or if the RHPWG has lead responsibility (LR) for completing the tasks, as well as indicating which subcommittee the task is assigned to and which other subcommittees or Work Groups also have roles in the task requiring coordination. The table is organized by eight over-arching tasks related to elements required in a RH SIP or to activities supporting SIP preparation and review, prior to submittal to the U.S. EPA:

1. Monitor Data Analysis,
2. Emission Inventory Development,
3. Air Quality Modeling,
4. Analyze Future Year Modeling Results,
5. Control Measures Analysis,
6. Training and Outreach Materials
7. Technical Support System (TSS v.2),
8. State Planning and Adoption, and
9. RHPWG Administrative Tasks.

 Additional text following the table below provides further overviews of RH SIP tasks.

After discussion with the Subcommittee Leads and the Technical Steering Committee, the components of the over-arching task initially described as Task 6 “Embedded Progress Report” in the Work Plan has been reassigned into other over-arching tasks related to emissions, monitoring data, control assessments, and interstate coordination. The Progress Report required within the RH SIP is the look-back at past trends and prior SIP commitments for meeting the 2018 initial planning period goals. This review contrasts with the forward-looking focus of the balance of the RH SIP. The required past progress analysis requires the most recent monitoring data that may not be available until late 2019. The States can develop much of the analysis on their own using data from the TSS. Final compilation of the Progress Report requirements could be finished in 2020, with or without contracted support.

A new overarching Task 6 “Training and Outreach Materials” is created in response to needs identified by states and the TSC for internal training of RH SIP and TIP preparers, and for external outreach to the public and other stakeholders. This task benefits all WRAP participants in that it advances the dissemination of knowledge gained from research and prior experience of WRAP participants. Together, WRAP members have invested considerable time and effort explaining the unique causes of visibility impairment at western Class I areas and documented the measured differences in visual quality at Class I areas in the various geographic regions of the country. Modifications of the initial Regional Haze Rule are the result of U.S. EPA recognizing these western differences and the need to modify the metric for demonstrating progress in improving visibility under different geographic settings with disparate causes of haze. This over-arching Work Plan task would equip the SIP-writing staff with SIP preparation training resources, as well as provide materials for use in meeting with stakeholders and other members of the public. The outreach tools developed, would build on WRAP member work explaining the causes of natural and anthropogenic haze in the west, how this impairment can be reduced, and the value for the public good. It would include assembly of existing materials in a readily accessible format. Staff turnover occurs with a multi-decade program so it is beneficial for all to compile and centralize this information in an accessible format.

Task 8 for State Planning and Adoption is retained to remind other participants in this Work Plan that there are legal requirements that drive the timeline for scheduling all the tasks. The technical work needs to be finished so that states have final draft plans completed by December 31, 2020, at the latest. This includes the time for consultation and coordination with other States and Tribes on control strategies and 2028 goal-setting prior to the final draft. States need to have final drafts ready at the beginning of 2021 in order to have (1) time for the required formal 60-day pre-public consultation with the Federal Land Managers; (2) time to respond to FLM comments; (3) time to go through the States’ required public review process; and (4) time to assemble the record for submittal to U.S. EPA with the SIP document. Some state SIP writers need to advance that process by almost a year to meet their own state goals for early submittal to U.S. EPA, including (5) time for state legislature review of the SIP, after public review, prior to submittal to U.S. EPA. Regional modeling to deliver Reasonable Progress Goals for 2028 in the first quarter 2020 makes that possible. It also allows those states intending to submit their RH SIP to U.S. EPA in 2020, a minimum time window to complete the required state, Tribal, and inter-state consultation/coordination and public review.

Given the multitude of discrete sub-tasks in preparing and assembling regional haze information, the overarching tasks have been sub-numbered within the over-arching task categories. After initiating and completing some work in 2018, for further clarification and numbering tasks helps with deciding who takes responsibility for completing specific work and whether contactor assistance is desired.

| **Task** | **Deliverable** | **Tracking and Coordination (TC) and/or Lead Responsibility (LR)** | **Assigned To / Coordination**  | **Comments** | **Schedule** |
| --- | --- | --- | --- | --- | --- |
| **Task 1. Monitor Data Analysis March 2018 – December 2019 (primarily MD &GP)** |
| 1.1 Evaluate EPA tracking metric and alternatives | a. Most Impaired Days selection tools for all Class I Areas and White paper on alternativesb. Recommendation for current planning period western tracking metricc. White Paper summarizing results of Task 1 | LR and TC, contractor support | -MD&GP SC-Coord. w/ RTOWG and FSWG, and SDb SC-Discussions with EPA and other federal agencies | -Task 1.1.a dataset will populate TSS-Evaluate metric alternatives-Evaluate E3 threshold-Calculate new baselines based on new most-impaired dataset-Critical to reach consensus regarding most-impaired tracking metric | March 2018 to 1Q 2019 |
| 1.2 Analyze monitor data (trends, ranges, and linkages)  | a. Recommendation for future planning period NC estimates for 2064 endpoint based on monitor and/or model data (may need contractor assistance)b. Reconstructed Glide Path from new MID baseline to 2064 endpoint adjusted for wildland prescribed fire and international anthropogenic contributions (TSS has new base line; focus on 2064 endpoint)c. As requested by individual States, method(s) for Hawaii, and other states with unique uncontrollable natural sources to account for natural vs. anthropogenic thresholds, for example vog and anthropogenic sulfate contributionsd. Report summarizing results of Task 1.2 with New Glide Path, between MID baseline and 2064 endpoints, or methodology for creating New Glide Path that States can use (contractor assistance may be helpful)  | LR and TC, contractor support | -MD&GP SC-Coord. w/ RTOWG, F&SWG, EI&MP SC, and SDb SC-Discussions with EPA and other federal agencies | -Need modeled contributions from wildland prescribed fire and international anthropogenic emissions to reconstruct 2064 endpoint for glideslope-States can do the species trends analysis on their own using TSS-Regional Summary Report might give depth to SIP analysis of trends by states-to develop method for determining new -Natural Conditions, and other possible adjustment to the 2064 endpoint | March 2018 to Dec. 2019 |
| 1.3 (Combine with former Task 6.1)Identify dominant visibility-impairing pollutants for each Class I Area and assess visibility conditions and changes | a. Analysis showing most-impairing species at each Class 1 Area and tracking trends of all species contributions over time (baseline and last five years of planning period, up to or through 2018), suitable for Progress Report b. Trend of five-year averages by deciview for Worst Days through 2018c. Trend of five-year averages by deciview for Best Days though 2018 and compare with “Clearest” Daysd. Compare the 5-year Worst Days average with 2018 RPGe. Describe other Weight of Evidence methods to measure visibility, other than deciview changes, e.g. average visual range, improvements to Best Days (more days than baseline, lower deciview) | LR | -MD&GP SC- Coord with SDb SC- Coord. With all states and Tribes | -States can identify most visibility-impairing pollutant at their Class I Areas once the data is posted to the TSS-May need contractor support if there is value in seeing a regional trends in summary report-This subtask is possible for each State using TSS data.-Incorporate “most recent” IMPROVE monitor data-Analysis comparing Worst Days average with modeled 2018 goal of initial SIP for Worst Haze Days | June 2018-Dec. 2019 |
| **Task 2. Emission Inventory Development - Feb 2018-Oct 2019 (Several SC & Work Groups)** |
| 2.1 Evaluate, Refine, and Process Base Year Inventory | a. Refined base year inventoryb. Gridded Inventory for States to confirm (“ground truth” at borders) | TC, contractor support | - EI&MP SC-Coord, w/ OGWG, FSWG, TDWG, and RTOWG | -Over-arching Task 2 data and products will be posted to TSS-Inventory suitable for modeling, control measure analysis, and future year projection-Include FLM inventory of Class 1 Area Emissions and Tribal Data if available-Consult with coastal states with shipping inventories-Reconcile CA mobile emissions with EMFAC modelers and inventory analysts | April 2018-Feb 2019 |
| 2.2 Evaluate use of 2016 EPA modeling platform | a. RTOWG-contracted analysis of air quality, met, and emissions data regarding representativeness of 2014, 15, and 16 years for western air quality modelingb. RTOWG White paper presenting pros and cons of applying 2014 or 2016 inventory/modeling platform or both for Regional Haze 2028 projections and planning | TC, contractor support | -LR RTOWG -Coord. With EI &MP SC | -Timely availability of the 2016 modeling platform important, may require extra time for task to update to 2016- Comparison of 2014 and 2016 source contributions and emission reductions to inform planning activities and contribute to RH SIP written discussion-Will use report as justification for selected base year in appendix to RH SIPs | June-August 2018 |
| 2.3 Develop and refine 2028 forecasts | a. RTOWG contractor-supported report detailing projection methodologies by source category and precursor species incorporating results of sensitivity testing to develop 2028 emission inventory (base case)b. Refined 2028 control measures inventory incorporating all emissions reductions resulting from state’s reasonable progress control measures analysisc. Determine averaging for categories with multiple year variations, e.g. EGU, Fire, O&G | TC, contractor support | -RTOP WG-Coord. with EI&MP SC-Coord. w/ Control Measures SC- Coord with OGWG, FSWG, TDWG, and RTOWG | -Two phases, planning inventory (on the-way & on-the-books) and reasonable progress control measures inventory-Projected 2028 planning inventory suitable for modeling and control measure analysis-Incorporate OTW/OTB reductions and results of sensitivity testing-Provides starting point for additional control scenarios-Control measures inventory incorporates all 2028 refinements from control measures analysis | May 2018-Oct 2019 |
| 2.4 Develop screening tools | a. 2014/2016 emissions pivot tables with Q/d capabilities (contractor assistance)b. 2014/2016 and 2028 weighted emissions potential plots (WEP) | LR, TC, contractor support | -Control Measures SC-Coord. w/ SDb SC, EI&MP SC and RTOWG | -Requires final 2014/2016 and 2028 emission inventories developed by others-Critical to reach consensus regarding development and application of screening tools | March 2019-March 2018 for Q/d;May 2019-Aug 2019 for WEP |
| 2.5 Special Inventory or Modeling Needs (see also Task 3.7) | a. Wildland Prescribed Burning Emissions Inventory to be used for 2064 endpoint adjustmentb. International Emissions Inventory (natural & anthropogenic) to be used for 2064 endpoint adjustmentc. In-state Dust, Volcano, Wildfire, and Biogenic Emissions, seasonal and frequency analysis to be used to verify “Natural Conditions”c. If requested by state, Back Trajectory analyses for Alaska | LR, TC, contractor support | -EI & MP SC-Coord w/ RTOWG Monitoring and Glide Slope SC, FSWG, and RTOWG | -These contributions need to be quantified (as a contribution to extinction, species, or dv) at each monitor-Percent contribution to the inventory might be evaluated as a surrogate if modeling is not available.  | March 2018 – May 2019 |
| 2.6 State-Specific Analysis of Emissions Inventory TrendsCombine with Former Task 6.2 Analyze changes in emissions | a. Individual State Reports by Categories and by Species to be used as starting off point for screening and for justification of Long-Term Strategy and for Progress Reports, use available inventories from TSS or NEI (Trend analysis for changes in each haze precursor emissionsb. Compare baseline emissions from initial SIP with “most recent” data (e.g. submitted NEI 2017)c. Compare emissions from BART facilities with retrofits implemented by end of 2018 and explain if implementation not accomplished (use for embedded Progress Report) | TC | -State by State and Tribes- Coord with EI&MP SC, CM SC, and SDb SC-Coord w/ states-Coord with F&S and O&G WGs- Some info on TSS v.1 and v.2 | -What’s growing, what isn’t, what’s clustered, what’s legally and technically controllable by whom, what percentage is it of the inventory sectors? etc. (sectors: Natural, Mobile, Area wide (anthro), Stationary (anthro), all State-by-State- States perform this task -States may need to use most recent NEI submitted, whether or not EPA has approved it; Otherwise, states use EPA-approved 2014 NEI | July 2017- March 2018Progress Report 2019 through 20020 depending on state submittal schedule |
| **Task 3. Air Quality Modeling - Feb 2018-early 2020 (RTOWG with RHPWG SCs support)** |
| 3.1 Prepare modeling plans | a. Protocol for Visibility and Source apportionment modelingb. Plan for dynamic modeling evaluations and sensitivity testing | TC, RTOWG contractor support | -Coord. w/ EI&MP SC and CM SC | -All Task 3 data and products to be posted on TSS-Protocol and Plan should address all subtasks in over-arching Tasks 3 and 4 | Feb-March 2018 ??? |
| 3.2 Prepare and evaluate Meteorological data | a. Model-ready meteorological data set and RTOWG-contracted evaluation report | TC, RTOWG contractor support | -Coord. with EI&MP SC | -RTOWG task, just keep RHPWG informed of progress-Consult with Meteorologists at State air agencies | March-April 2018 ??? |
| 3.3 Perform dynamic model evaluations | a. RTOWG contractor-supported evaluation of various historic modeling platforms and evaluation report | TC, RTOWG contractor support | -Coord. With EI&MP SC-Coord with CM SC for WEP-Coord with and RTOWG, O&G, TD, F&S WGs | -RTOWG task, just keep RHPWG informed of progress | Feb-July 2018??? |
| 3.4 Conduct sensitivity testing | a. RTOWG-contractor supported report to inform decision on how to predict future boundary conditions (global models) and natural emissions such as wildfire smoke and dust for 2028 forecasts | TC, RTOWG contractor support  | -Coord with EI&MP SC-Coord. w/ FSWG, OGWG, and RTOWG | -Keep RHPWG advised | April-July 2018??? |
| 3.5 Evaluate use of 2016 EPA modeling platform | -See Task 2.2 | TC, RTOWG contractor support | -Coord with EI&MP SC and RHPWG | -Keep RHPWG advised | June-July 2018 |
| 3.6 Conduct Base Case and Future Year Modeling | a. RTOWG contractor-supported report on results of base year visibility and source apportionment modeling and model performance evaluation | TC, RTOWG contractor support | -Coord with EI&MP SC-Coord. w/ SDb SC-Keep RHPWG advised | -Base year modeling used to evaluate model performance-Base year modeling results support the identification of source sectors/facilities for control measures analysis | Jan – May 2019 (performance modeling and base case and source apportion-ment) |
| 3.7 Special Inventory or Modeling Needs (see also Tasks 2.5 and 1.2.b) | a. Prescribed Burning Emissions Inventory to be used for 2064 endpoint adjustment; figure attributable portion after 2028 tagged or source apportionment modeling)b. International Emissions Inventory (natural & anthropogenic) to be used for 2064 endpoint adjustmentc. In-state Dust, Volcano, Wildfire, and Biogenic Emissions contributions, seasonal and frequency analysis to be used to verify “Natural Conditions” | LR RTOWG, TC, contractor support | -Coord with F&S WG and with EI&MP SC-Coord -Work closely with MD&GP SC charged with developing methodology to adjust 2064 end point and Glide Path changes | -Prescribed Burning and International contributions need to quantified (as a contribution to extinction, species, or dv) at each monitor-Percent contribution to the inventory might be evaluated as a surrogate if apportionment modeling is not available. | March-Dec 2019 |
| **Task 4. Analyze Future Year Modeling Results - Feb 2018-early 2020** |
| 4.1 Resolve tracking metric and model output issue | a. RTOWG contractor-supported report on options and preferred methodology | TC, RTOWG, is LR RTOWG, contractor support as needed | -Coord with EI&MP SC-Coord. w/ MD&GP SC-Coord with SDb SCKeep RHPWG advised | -All Task 4 data and products to be posted on TSS-Results will inform post-processing of model results for the most-impaired metric | Feb-July 2018 |
| 4.2 Sensitivity and control strategy evaluation modeling for 2028 | a. RTOWG contractor-supported report presenting results of sensitivity testing | TC, RTOWG contractor support | -Coord with EI&MP SC, CM SC and SDb SCs-Coord with C&C SC for “Critical Juncture” Webinar | -Results will focus development of projected 2028 emission inventory and identify pollutants/source sectors with greatest visibility improvements from controls | May-Oct 2019 |
| 4.3 Evaluate base year and 2028 source appointment modeling results | a. RTOWG contractor-supported report on results of evaluationb. As requested by individual States, method to assist states with identifying international contributions to monitored impairment | TC, RTOWG contractor support | -Coord. with EI&MP SC-Coord. with CM SC (WEP)-Coord. with MD&GP on 2064 endpoint adjustments  | -Evaluation of base and future year modeling results inform the selection of pollutants, source sectors, and facilities for control measures analysis | Aug-Dec 2019 |
| 4.4 Evaluate change in visibility from base year to 2028 | a. Reasonable Progress Goals | TC, RTOWG contractor support | -Coord with EI&MP SC-Coord. w/ CM SC-Coord with SDb SC for TSS-Coord with C&C for Final “Critical Juncture” Webinar- RHPWG will assist with State justifications discussions | -Final projected 2028 visibility modeling results incorporating all control measures identified by tribes, states, and locals, (with input from FLMs) to determine the 2028 Reasonable Progress Goal for each Class I area-Timely delivery depends on timely identification of emissions reductions from control measures | Dec 2019-March 2020 |
| **Task 5. Control Measures Analysis - Feb-Dec 2019 (primarily CM SC)** |
| 5.1 Develop criteria for source identification and 4-factor analysis | a. RHPWG in-kind white paper to lay out regionally-consistent analysis protocol, list of sources for analysis, and evaluation criteriab. (Optional) RHPWG in-kind development of BACT, BART, RACT Clearinghouse for key source sectors in multiple states | LR, contractor support as needed | -Control Measures SC-Coord. with EI& MP SC and RTOWG | -All Task 5 data and work products will be posted on TSS or WRAP webpage-Clearinghouse (task 5.1.b) would be listing of potential control measure levels for evaluation-Critical to reach consensus regarding criteria to identify sources and methods for four-factor reasonable progress analysis Initial FLM focus on oil and gas activities, mining activities, power plants, cement plants, pulp mills, gas plants, and refineries | Feb 2018-Feb 2019 |
| 5.2 Determine whether to use visibility as “fifth” factor | b. RHPWG in-kind white paper above to address methodology, for states to utilize | LR, TC, RTOWG, contractor support as needed | -Control Measures SC-Coord. w/ Monitoring, Modeling Protocol SC, RTOWG | -Use Colorado and Georgia protocols as starting point for ideas-Critical to reach consensus regarding use of visibility-Use of visibility will require additional single-source modeling efforts not included in this Workplan nor budgeted | 1Q 2019 |
| 5.3 Conduct regional/state source screening | a. RTOWG-contractor supported screening analyses using source apportionment or WEP or Hysplitb. RHPWG in-kind white paper describing results and next steps for states | TC, RTOWG, contractor support | -Coord. with CM SC-Coord. w/ C&C SC for “Critical Juncture” WebinarRTOWG, and tribes/states/locals | -Review with TSC and Board before finalizing white paper-Critical to reach consensus regarding screening analysis-Initial screening will utilize screening tools developed under Task 2.4, a second phase will utilize the results of 2028 planning modeling conducted under Task 4.3 | Aug-Sept 2018 ?? (Initial Screen)Dec 2018-March 2019?? (Phase two) |
| 5.4 Identify 2028 control strategies and incorporate in 2028 inventory | a. Tribes, states, and locals provide revisions to 2028 emission inventory reflecting application of controls | TC, RTOWG, RTOWG contractor support | -Control Measures SC-Coord. EI&MP SC | -Timely completion of this task is critical to complete the modeling necessary to meet the early submission dates of some states-Document controls in each State’s RH SIP |  Sept 2018-Dec 2019 |
|  |
| 5.5 Compile the BART completion status and if state met estimated emissions reductions by 2018 from the initial planning period goals. (former Task 6.2) | a. Table or report that States can use for Progress Report requirement | TC. Contractor Support for collating BART and other reduction commitments only | - CM SC coordinate with EI&MP, SD, MD& GP, and C&C to resolve timing issues |  -Each state used different years for 1st Progress Report -Most states will have a 2017 NEI as most recent inventory -Goals were set as Worst Haze days using unmodified data -Monitoring data not available until October 2018 for 2018 -Individual States may choose to select different years as “most recent” | 4th Q 2019-2020 |
| **Task 6. NEW Training and Outreach Materials Jan-Dec 2019 (RHPWG and Subcommittees)** |
| 6.1 Assess needs for materials useful to SIP planners | a. High level overview of SIP planningb. Glossary of RH-related terms (plain English and technical)c. FAQs (complete, simple document with links)d. Storyboard (adaptable template, WESTAR Core Values etc.)e. Webinar presentations (or excerpts)f. Simple explanations of visibility topics for training and/or outreach purposes (e.g. Haze Index explanation, technical work explanations, research, and commonly used references); could be list of linksg. others as determined by RHPWG members/states | LR with all RHPWG subcommittees | –Tribes, states, and locals-Delivery on TSS  -SDb SC and C&C SC | -Differentiation between SIP preparation training materials and materials to be used for outreach to stakeholders (content and style may differ, depending on audience and purpose)-Incorporate items already being developed by various subcommittees. | April 2018 -March 2019 |
| 6.2 Oversee the completion and distribution of materials | a. Share Working Draftsb. Document docketing process, as appropriatec. Decide on appropriate posting location (TSS or Webpage) | LR  | -Tribes, states, and locals-Primary Coord. between C&C SC and SDb SC and TSC-Work with RHPWG co-chairs and TSC Facilitators | -Items will eventually be posted on TSS or WRAP RHPWG website (once consensus is reached through docketing process) | October 2018-mid -2020 |
| 6.3 Populate TSS v2 or WRAP webpage with WRAP-approved materials | a. State Resources section | LR, with CIRA collaborators and Webpage managers | -Tribes, states, and locals-Coord. w/ TSC | -Some materials used for SIP writing and background-Some resources for embedded Progress Report-Some items suitable for public outreach. | September 2019 |
| 6.4. Optional Regional Report (See also Task 7.8) | a. Catalog of Inventory changes, Species monitoring trends for Mass and light extinction, and RPGs achievements for all sites across the region (“Megatrends”)b. Optional Comparison of Most Impaired Days (2014-2018) 5-year Average with 2018 Impaired Days on new Glide Path | LR for RHPWG with contractor services | -EI&MP SC and MD&GP SC and CM SC-Coord. w/ tribes, states, and locals-Delivery on TSS | -Regional compilation is “academic” exercise, not necessary for rule, and therefore suggest only if left over funds-Valuable for documenting and understanding long-term regional trends | 2020-2021 (depends on State schedule) |
| **Task 7. Technical Support System TSS v2 Jan 2018-early 2020 (primarily SDb SC)** |
| 7.1 CIRA staff to reach out to RHPWG to review TSS.v1 and .v2 | a. Framework for TSS v.2 incorporating all features identified by RHPWG | LR - CIRA (collaborator); TC – SDb SC | -Shared Database SC-Coord. w/ all other SCs and Work Groups | -New Baseline (2004 average) start points for Glide Slopes for all CIAs-Incorporate appropriate Rayleigh Scattering at each Class 1 Area-TSS updates for monitoring data, emissions data and modeling results-Documentation needs | March 2018 |
| 7.2 Populate TSS with monitor data | a. Post annual IMPROVE monitor data on TSS v2 when available |  LR – CIRA (collaborator) TC – SDb SC | - Shared Database SC-Coord. w/ Monitoring SC | -Worst, Most Impaired, Clearest (Best) by species, mass, extinction, and dv (include Rayleigh for each site- Recommendation needed from Monitoring SC regarding “snapshot” date | April –May 2018 (although refinements continuing through 2019) |
| 7.3 Populate TSS with emission data and 2028 emissions projections | a. Post 2014 emissions data and refinements to TSS v2 as availableb. Post 2028 emissions projections to TSS v2 as available (base case)c. Post 2028 emissions projections to TSS v2 as available (control measures scenario) |  LR – CIRA (collaborator); TC – SDb SC | -Shared Database SC-Coord. w/ Emissions SC, OGWG, FSWG, TDWG, and RTOWG | -Will need to put “most recent inventory” in the Appendix to all RHSIPs with an explanation of why 2016 and 2017 EIs were not timely for modeling or planning and with a brief analysis of what changed and why. U.S. EPA usually concerned with how reductions are included in the forecasts...-Base Year is 2014 -Base case modeling is 2028 OTB & OTW - 2028 control measures scenarios-2028 final modeling emissions used for RPG | Fall 2019 |
| 7.4 Populate TSS with base year modeling results | a. Post base year modeling results and refinements on TSS v.2 as available |  LR - CIRA (collaborator); TC – SDb SC | -Shared Database SC-Coord. w/ Modeling SC and RTOWG | -Include Model Performance Evaluation | September 2019 |
| 7.5 Provide TSS training | a. Develop and host TSS v.2 periodic progress reports as webinars (as new tools become available) |  LR - CIRA (collaborator); TC – SDb SC | -Shared Database SC-Coord. w/ all other SCs and Work Groups | 1st October 5, 2018-Baseline, 2064 and Glide path, and URP recalculations and what they mean | 2-3 more in 2019; final in 2020 |
| 7.6 Populate TSS with 2028 on-the-books modeling results | a. Post 2028 base case modeling results on TSS v.2 |  LR - CIRA (collaborator); TC – SDb SC | -Shared Database SC-Coord. w/ Modeling Protocols SC and RTOWG | -States need to basis to explain why they are not “on the Glide Path” | October 2019 |
| 7.7 Populate TSS with additional reasonable control scenario modeling results | a. Post additional reasonable control scenario modeling results on TSS v.2 |  LR – CIRA (collaborator); TC – SDb SC | - Shared Database SC-Coord. w/ Modeling Protocols SC and RTOWG | - Includes final RPG run for 2028 in dv (and mass, light extinction etc.-Some of these may be sensitivity runs for single facility or category emissions change as result of controls added after consultation | As available in 2019and 2020 |
| 7.8 Assure availability of data-related required elements for State Progress Reports | a. current (most recent 5-year period) visibility conditions (worst/best days)b. difference between current visibility conditions and baseline visibility conditions (worst/best)c. change in visibility conditions since most recent progress report (worst/best)d. changes in anthropogenic emissions since the most recent plan (from within State and outside) | LR – SDb SC; work with CIRA (collaborator); may require help from contractor for gathering information from states | -Shared Database SCw/ Monitoring/Glide Path SC and EI/Modeling SC | -1st 2019 TSS Progress Report will include State Progress Report requirements and show where/how to access information on TSS v.2 | April/May 2019 (if emissions data from all states available) |
| **Task 8. State Planning and Adoption Process - Feb 2018-July 2021 (States w. C&C assistance)** |
| 8.1 Identify SIP planning target dates | a. Timeline identifying critical SIP planning milestones and target dates completed in 2017;b. Timeline refined with critical informal consultation junctures and milestones | LR – C&C SC | -Coord. w/ all other SCs and Work Groups | -Reconcile with availability of Emissions input and Modeling timeline | -Refine- ments roll-out in 1st quarter (calendar year) i.e. complete by March 31, 2019 |
| 8.2 Establish consultation-coordination “Framework” | a. White Paper from RHPWG Consultation and Coordination Work Group includes:- Succinct overview of topics/questions to help states prepare for coordination with each potential partner agency- List of key regional contacts, including FLM, tribe, state, EPA | LR – C&C SC | -Coord. w/ all other SCs and Work Groups | -Ongoing, Formal and informal Components-For State, FLM, and Tribal consultation and coordination-For both comprehensive SIP revision and progress report | March 31, 2019 for White Paper (followed by imple-mentation of “Frame-work”) |
| 8.3 Consultation with WRAP member agencies(1) informal FLM(2) state to state(3) state with tribes(4) time-specified formal review of draft final RH SIP prior to public review | SUBCOMMITTEE WILL:a. Keep record of meetings and conference calls for states to include in SIP chapters or Appendixb. Prepare & disseminate communication log template for states to usec. Support or facilitate regional information-sharing webinars and prepare materials to assist states with ongoing conversationsd. Support ongoing regional consultation and collaboration through SIP development and beyond, as neededEACH STATE WILL:(1) Conduct State-to-State Consultation and Tribal Coordination (2) Maintain a written record and discussion of response to State/Tribal comments showing how they were incorporated (or not and why) in the RH SIP(3) Conduct formal FLM review prior to public review and allow time for writing response to FLM comments to be included as RH SIP Appendix and changes to draft Final if warranted | LR – C&C SC | -Coord w/ tribes/states/FLMs | -Ongoing started with first Western Caucus Dec 2017-State-to-State and Tribal Consultation must occur and evidence/outcome included in the RH SIP prior to the FLM formal review-Allow 60 days for formal FLM review and 30 days for States to respond to comments prior to putting the RH SIP out to public notice | December 2017 through 2nd calendar Quarter 2021 (depends on State schedule for Submittal)  |
| 8.4 PUBLIC REVIEW PERIOD(a) public notice period(b) public hearing period(c) final record of adoption(d) packaging for EPA submission | Potential Elements in State RH SIP Public Review Timeline:- Public Notice- Potential Hearing- Responses to Public Comments - Record included in RH SIP Appendix- Packaging for Submittal to U.S. EPA | Each State | Each State | TIMELINE (after FLM review & response) VARIES WITH EACH STATE’s LEGAL SIP ADOPTION PROCESS REQUIREMENTS (anticipate 2 month minimum)(could be longer if delay for state’s legislative or executive actions) | 2020 through July 2021 (depends on State schedule) |
| 8.5 Deadline for submittal to U.S. EPA | - RH SIP includes RPGs, Inventories, Monitoring (Visibility Trends, New Glide Path Justifications, Control Measures, Planned Reductions, Consultation Results, Modeling, Progress Report, Public Comments and Responses, etc. | Each State | Each State | -July 2021 reserved for States to prepare final RH SIP and review documentation package they send to US EPA | **JULY 31, 2021** |
| 8.6 Public and Stakeholder Outreach Materials | SUBCOMMITTEE WILL:a. Solicit and share examples of outreach materials from states to share with RHPWGb. Document suggestions for incorporating regional haze into ongoing stakeholder communication | RHPWG LR-  | -C&C SC works closely with SDb, RHPWG co-Chairs and WRAP Facilitators-Each State  | -Audience would be state-identified stakeholders such as the public, industry, environmental groups, etc.-Need to determine long-term location for posting examples-Consider full range of uses from RH SIP background to public outreach and education | -Ongoing beginning in 2019(State usage depends on state schedule and outreach strategies) |
| **Task 9. RHPWG Administration** |
| 9.1 Monthly calls of RHPWG | a. Regular schedule 1st Tuesday noon-2PM Mountainb. Agendas & Meeting Notes posted on WRAP webpagec. Action Notes emailed after each monthly conference callc. Continue to solicit and asses state needs for assistanced. Confirm state abilities and encourage contribution of all states to data collection needed to support regional technical analysese. Discuss options and recommend process (where appropriate) for addressing results of US EPA rule revisit and/or final guidancef. Present deliverables and other task progressg. Keep tasks on pace with identified schedule | RHPWG (LR Co-Chairs) | -Coord with Other Work Groups-Coord agendas with Subcommittee Leads and WRAP Regional Leads (Facilitators) from TSC | * What needs to be posted? When? Where?
* TSC advises RHPWG co-Chairs of decisions to contract identified priority needs (ideally in advance of Work Group calls if not discussed in Subcommittees)
* Important purpose to keep Work Group members apprised of contracted deliverables progress and of needs for in-kind state work on specific tasks
* Monthly meetings can be shortened or cancelled if necessary
 | January 2017 - July 2021 (changed from bi-monthly conference calls to monthly calls starting January 2019) |
| 9.2 Subcommittee Roles, Responsibilities, Tasks & Deliverables | a. Define specific Tasks and Responsibilities for In-Kind Services and for Contractor support (Collaborative Decisions with TSC)b. Regularly scheduled conference callsas needed for coordination with other Work Groups, Subcommittees, or Contracted Servicesc. Protocols and White Papers go through docketing processd. Serve as Sounding Boards for contracted services |  Subcommittee Leads (LR)RHPWG (TC)  | -Coord. with other Project Teams as needed for Inventory, Modeling, and Control status (Oil&Gas and Fire&Smoke and RTO WGs)  | -How will the subcommittee be involved in contract services?-What “deliverables” should be posted on webpage or TSSv.2.?-Suggest calling TSC Regional Leads “Facilitators” to avoid confusing roles and responsibilities with other RHPWG Subcommittee “Leads” |  January 2108 through 2020? |
| 9.3 Coordination and Consultation | a. Prepare Reports to TSC and others as requestedb. See also Action Items 8.2 and 8.3 as an RH SIP task | RHPWG (TC) and LR for C&C SC & States clarified in Task 8.3 | -Coord. For C&C SC with Tribal Data Work Group | -RHPWG provides consensus for C&C Framework-RHPWG and C&C SC webinars and conference call are evidence of informal consultation & coordination in advance of rule deadlines-States document formal consultation & coordination in RH SIP | Continued from 2017 through State SIP approval for submittal to U.S. EPA |
| 9.4 Determining Needs for Additional Training  | a. Survey States (completed Jan 2017) indicated which states cannot do specific tasks in-house and other tasks that may arise as neededb. WESTAR 2021 SIP Update as potential tool for SIP training (complete Working Draft, if needed)c. Determine and conduct or arrange additional training as needed for SIP preparationd. Utilize TSC SIP Readiness Survey from December 2018 for prioritizing training needse. Investigate develop- ment of “Storyboard” elaborating on WESTAR theme “The West is Different” and how it relates to the foundational goals of the Clean Air Act and the evolving national regulatory program for visibility protection by reducing anthropogenic haze impairment atClass 1 Areasf. Consider difference between training materials and outreach materials | RHPWG and C&C and Database (LR) | -Coord with other RHPWG Subcommittees  | - Recommending ways training and outreach can be accomplished-Assemble Examples and Reference materials to be placed on website or TSS, depending on content and purpose (for Public Outreach or background for the SIP writer or both)-Examples: list of references with links; new or existing materials developed through RHPWG or States; lists of State RH SIP or visibility/haze webpages and contact persons; references to Federal links | Started with Webinars in 2017, continue through State public review timelines as needed |
| 9.5 Evaluating Contract Services  | a. Input to RFP for task(s)b. Review of Deliverables from contractc. Assist TSC by providing time line for delivery of technical informationd. Assist TSC in prioritizing needs for regional contract work | RHPWG & specific Subcommittee tasks (LR with TSC,) (also TC)  | -May need input from all other Work Groups-different RHPWG subcommittees pertinent to specific task  | -States review to ensure that finished products meet needs for RH SIPs | March 2018 through Spring 2020 |
| 9.6 Conducting In-Kind Work | a. Protocol for Work Needed | RHPWG (LR with TSC also TC)  | May need input from all other Work Groups; RHPWG subcommittee pertinent to task  | -Protocol establishes consistency- Work Products shared with Work Group and posted as needed on WRAP webpage | March 2018 through Spring 2020 |
| 9.7 Budgetary Needs | a. Travel for key members to in-person meetingsb. Conference call lines for discussions or webinarsc. Contracted Services | TSC (LR) RHPWG (TC) | TSC | -RHPWG can identify tasks; it is not clear whether RHPWG can establish budgets, or whether that is controlled by the TSC | 2018-July 2021 |
| 9.8 (Former task 6.3) Prepare Progress Report for achieving 2018 RPGs | a. Include standard requirements of Progress Report per rule regarding Emissions and monitoring trendsb. c. and natural, that interfered with achieving RPGs (in-state and out-of-state)d. States may discuss options of using alternatives such as All Days Average Visual Range comparison or other data analysis to explain/justify visibility progress | LR, TC with CIRA collaborators and States | -Coord with States using data from TSS | Nothing to do with Most Impaired Days because west is not recalculating nor re-modeling 2018 RPGs-States may use what they learn about Most Impaired Days as their discussion in RH SIP. using TSS data for comparisonRHPWG would facilitate discussions | 2019-2021 (depends on State schedule)September 2019 |
| 9.9 (Former Task 6.4)Optional Regional Report | a. Optional Catalog of Inventory changes, Species monitoring trends for Mass and light extinction, and RPGs achievements for all sites across the region (“Megatrends Report”) prepared by Contractorb. Optional Comparison of Most Impaired Days (2014-2018) 5-year Average with 2018 Impaired Days on new Glide Path, conducted by states or contractor | TC, LR for RHPWG with contractor services or by states | -Monitoring SC-Coord. w/ tribes, states, and locals-Delivery on WRAP site | -Academic exercise, not necessary for rule, and therefore suggest only if contracting funds available and/or states conduct analysis independently and share information | 2020-2021 (depends on State schedule) |

**Task 1. Monitor Data Analysis**

The 2016 draft[[22]](#footnote-25) and final 2018 U.S. EPA guidance[[23]](#footnote-26) propose a new visibility tracking metric designed to identify the Most Impaired Days (MIDs), where impairment is due to anthropogenic emissions. The new metric has generated considerable comment and requires further evaluation. As such, the Monitoring Data and Glide Path Subcommittee performed extensive analysis of EPA’s proposed tracking metric in 2018 and found that the metric performs adequately at most western Class I areas and recommends the proposed tracking metric’s usage for visibility tracking. This recommendation and a finalized IMPROVE dataset for western State usage is set to be finalized in early 2019.

monitor data. Further, the guidance allows adjustments to the Uniform Rate of Progress (URP) or the glideslope (deciview change per year) for the straight line Glide Path connecting the baseline (average for 2000-2004) to the 2064 endpoint. These adjustments result from (1) switching to a Most Impaired Days metric and (2) accounting for contributions from wildland prescribed fire and international anthropogenic emissions, added to the 2064 end point (natural conditions estimate.) The 2000-2004 baseline (start point for determining the glide slope) can be adjusted to account for natural emissions from wildfire and dust, when they are extreme episodic events. Some western states may also find it necessary to make adjustments for natural volcanic emissions when calculating the Most Impaired Days and when recalculating the baseline if volcanic events occurred during the baseline period. In 2019, the RHPWG will seek consensus regarding: the identification and application of a “most-impaired” visibility tracking metric; potential revisions to the Natural Conditions estimates for future planning periods; and adjustments to the Glide Path, the line defined by the baseline start point and the 2064 endpoint. Methods for determining the contributions from wildland prescribed fire, volcanic events, and international anthropogenic emissions to be added to the 2064 endpoint would be developed.

This task will result in a consistent IMPROVE dataset based on a most-impaired metric, to be posted with supporting graphical capabilities on a technical support system website developed as part of Task 7. This dataset has and will be evaluated by Monitoring Data Analysis and Glide Path Subcommittee (MD&GP SC) and by individual states to identify trends, ranges, and linkages between source and monitor. In 2018 progress was made towards this task completion through evaluating the derivation of the most-impaired metric and identifying scientifically-sound alternatives, evaluation of the extreme episodic event (E3) threshold and scientifically-sound alternatives, and evaluation of current Natural Conditions (NC) estimates and scientifically-sound alternative estimates based on historical monitor data and/or source appointment modeling results (Task 3 and 4 support). A method to evaluate the anthropogenic/natural split of observed ammonia sulfate resulting from volcanic emissions and natural marine emissions might be explored separately by Hawaii. A similar method to identify international contributions to observed visibility will also be explored at the request of other States and will otherwise be included in the analysis of the URP for international emission impacts. Work conducted by the Energy Policy Research Institute (EPRI) on quantifying international contributions to observed visibility will be evaluated by the MG&DPS in development of a methodology for adjusting the 2064 endpoint. The Technical Memorandum released by US. EPA in December 2018 indicated states can propose science-based methods for the accounting of impact from international emissions.[[24]](#footnote-27)

This task requires contractor support and coordination between the RHPWG Co-chairs, RHPWG MD&GPS, the RHPWG’s Shared Database (SD) Subcommittee, the RTOWG, and the FSWG to provide technical oversight and direct contractor support. The RHPWG Co-chairs will facilitate coordination by organizing periodic RHPWG calls and participating in periodic regional haze planning meetings. A summary report will document the evaluations and identify a most-impaired metric to track western visibility progress and new natural conditions estimates, as warranted.

**Task 2. Emissions Inventory (Emissions Inventory Development)**

The WRAP has proposed using the 2014 National Emissions Inventory (NEI) as the starting point to developing a base year emission inventory for regional haze modeling efforts. The U.S.EPA, with several multi-jurisdictional organizations (MJOs) are developing a 2016 emission inventory and modeling platform. WRAP modeling efforts require refined base year emission inventories, currently the 2014 NEI, as well as projected future year emissions inventories, 2028 for regional haze planning. Emission inventories also support the development of screening tools to identify facilities or source areas for reasonable progress analysis (4-factor analysis) as states develop their long-term strategies. The RHPWG will seek consensus regarding: future projection of emission inventories for (1) wildfire estimated for 2028 modeling purposes; (2) prescribed fire estimated for 2064 conditions; (3) oil and gas sectors for 2028 modeling; (4) international emissions for base year, 2028, and 2064; and (5) development and application of screening tools.

Through the Emissions Inventory and Modeling Protocol (EI&MP) Subcommittee, the RHPWG will track the RTOWG evaluation of benefits of using the EPA 2016 modeling platform and emission inventory and the development of screening tools in support of regional haze planning. Timely release of the 2016 platform is needed to determine its usefulness for WRAP regional haze modeling efforts. Comparison of the 2014 and 2016 emission inventories may be useful for informing regional haze planning, particularly for the change in anthropogenic emissions, and implementation of BART (for instance). More importantly, it will be necessary to have accurate emissions for natural or “uncontrollable” events (dust, wildfire, international, volcanic, and biogenic emissions) and for prescribed fire emissions- for the base year, 2014, as well as other years if multi-year averaging is used to inform 2028 forecasts or for adjusting the 2064 endpoint. Also, in discussion with seasoned modelers of the RTOWG, the RHPWG will assist in deciding what the five year deciview average should be for modeling purposes and the various applications of it for regional haze planning.

The base year inventory will also inform inventory projections to 2028. Emission inventories are also needed to create weighted emission potential (WEP) plots (gridded emissions weighted by the NOAA HySplit back trajectories) to define geographic areas with greatest potential to contribute emissions to Class I areas. Emission inventory access tools (e.g. pivot tables) can be created to assist states in evaluating emissions by source sectors and prioritizing source sectors with highest potential emissions. Pivot tables will be set up using Emissions divided by Distance (Q/d) for individual facilities or for specific grid areas. Both tools can be used to inform source screening for reasonable progress analysis.

The RHPWG will coordinate with the EI&MP Subcommittee, the Control Measures (CM) Subcommittee, the RTOWG, and Contractor to define the specific screening tools to be used in this second planning period and to implement these tools for the 2014/2016 base year and projected 2028 inventories. States can create back trajectories for modeled years for each Class I area. States can use these results to prioritize sources or source categories to consider in Reasonable Progress analyses and to make process decisions on consultation and analyses (Task 5.0) prior to the availability of source appointment modeling to inform reasonable progress analysis. Back trajectory analyses could also inform the discussions of how to account for prescribed fire impacts, and international emissions to adjust the 2064 endpoint.

**Task 3. Air Quality Modeling (Visibility and Source Apportionment Modeling)**

Regional air quality modeling is required to address requirements of the Regional Haze Rule and supports critical planning activities. Regional modeling of the continental US (CONUS) will occur in three phases; base year, future year planning (on-the-way/on-the-books controls), and control measures (all reasonable progress control measures). Base year modeling is needed to evaluate model performance, future year planning modeling provides information supporting development of long-term strategies, and control measures modeling will provide data to calculate 2028 reasonable progress goals (RPGs) for each Class I area. Additional efforts under this task are directed at preparation of a modeling protocol/plan, developing and evaluating meteorological data, dynamic model evaluations, evaluating the viability of using EPA’s 2016 modeling platform, and sensitivity testing of emissions from selected source sectors.

The RHPWG has a limited role in Task 3 beyond the consultation and coordination function of the EI&MP Subcommittee as it tracks coordination between the RTOWG, and its selected contractor(s). The RTOWG, in coordinating with the EI&MP Subcommittee, will lead efforts to develop a modeling protocol that addresses all the items under Task 3 *Air Quality Modeling* and some items under Task 4 *Analyze Future Year Modeling Results*. The RTOWG will also lead efforts to develop plans for the dynamic model evaluations and sensitivity testing proposed under this task, also in consultation and coordination with the EI&MP Subcommittee. The RHPWG will also evaluate the benefits of using the 2016 platform initiated nationally for ozone, in addition to, or instead of, a 2014 modeling platform to be created for regional haze planning.

The modeling protocol for visibility and source apportionment modeling will incorporate model performance evaluation protocols, identify tags for source apportionment modeling, and identify sensitivity tests and methods, while addressing ancillary activities needed to support regional air quality planning. The protocol will address and build on elements of the WESTAR-BLM-NM AQB Four Corners Modeling Study. Sensitivity testing will evaluate uncertainties in the emission inventories, evaluate a range of future emissions scenarios, evaluate the effects of various assigned natural/anthropogenic splits, and evaluate global modeling as related to boundary conditions. Dynamic model performance evaluations of previous modeling efforts will provide important information on both changes in emissions through time as well as the corresponding changes in visibility impairment.

**Task 4. Analyzing Future Year Modeling Results**

The results of the three phases of regional air quality modeling conducted under Task 3 inform key air quality planning activities for regional haze as well as NAAQS implementation. Evaluating base year modeling results provides critical information on model performance, evaluation of future year planning modeling results provides information supporting development of long-term strategies and identification of source sectors/facilities for control measures analysis, and analysis of the control measures modeling results provides information to calculate the reasonable progress goals (RPGs) for 2028. Additional sensitivity modeling results focus control measures analyses and provide a range of impacts from natural and international emissions. The screening tools developed under Task 2 and the base year modeling results are critical for understanding which impairment comes from anthropogenic rather than natural sources and also helps locate the source of impairment geographically (in-state, out-of-state, international).

The RHPWG has a limited role in Task 4 beyond consultation and coordination, especially coordination between the Modeling Protocols Subcommittee and the RTOWG, and its selected contractor. The RTOWG, in coordinating with the EI&MP Subcommittee, will lead efforts to analyze future year modeling results, including modeling conducted for sensitivity testing and control scenario evaluation. The RHPWG will also coordinate with other modeling centers to leverage work by others, such as EPRI’s efforts to characterize background conditions and evaluate global models/boundary conditions, to further WRAP-sponsored modeling efforts. However, the RTOWG and its contractor my need to provide perhaps a summary webinar or training to the RHPWG on the results of modeling and their use in SIP preparation and writing.

Task 4 focuses on analyzing and evaluating the results of future year modeling conducted under Task 3, including calculation of the change in visibility and 2028 RPGs for each Class I area. It also focuses on implementing the sensitivity testing and control evaluation modeling identified in the modeling protocol/plan developed under Task 3. In order to translate model results into a most-impaired metric, the implications of alternative approaches to calculating the Reasonable Response Factor (RRF) will be evaluated by applying different most-impaired metrics and different natural/anthropogenic splits in calculating the RRF-determined RPGs. Some of this work evaluating how MIDs are selected was done by the MD&GP Subcommittee in for Task 1 in 2018 which may inform how RRFs can be used. It may be that the RRFs can be used simply to determine species mass concentrations in 2028 on al days, after which MID selection would be a post-processing exercise.

Sensitivity modeling will provide evaluations of use of 4 km/12 km modeling grids including the possibility of only nesting from 12 to 4 km in sub regions with large emissions close to Class I areas; fire emission representations for base year and future projections such as year specific, averaged, and other unspecified representations; and global models that provide boundary conditions to CONUS modeling efforts. Model results will also be evaluated to determine how the 2064 endpoint of the Glide Path might be adjusted for the contributions of international emissions and prescribed wildland fire, and to inform Natural Conditions estimates and glide slope development in support of Task 1 activities.

**Task 5. Control Measures Analysis (Reasonable Progress Analysis)**

EPA draft guidance[[25]](#footnote-28) suggests states identify pollutants that contribute more than one percent to another state’s visibility impairment for potential control measures. The guidance also recommends states evaluate the top 80 percent of their non-mobile anthropogenic emission sources for those contributing pollutants. The evaluation consists of four statutory factors (often referred to as the 4-factor analysis or control measures analysis); cost of compliance, time necessary for compliance, energy and non-air environmental impacts, and remaining useful life of the source . Unlike the Best Available Retrofit Technology (BART) analyses conducted in the first regional haze planning period, determining the amount of visibility impairment is not required.. Timely completion of the control measures analyses and resulting quantifying potential emissions limitations is critical to support refinement of the final 2028 control measures emission inventory for modeling of RPGs.

The RHPWG will conduct much of this task with in-kind efforts, states efforts, and limited support from the RTOWG. The RHPWG will coordinate with the CM Subcommittee and RTOWG and its selected contactor. Coordination and consultation between the states/tribes/locals and FLM community are critical to timely completion of this task and will be a major focus of the RHPWG under this Task. Early consultation provides the opportunity for the FLMs to identify sources of concern for control analysis. At the December 2017 Regional Haze Workshop in Denver, informal consultation and discussions with the western FLMs identified emissions from oil and gas activities, mining activities, ancillary off-road area sources and unpaved roads associated with natural resource extraction areas, power plants, cement plants, pulp mills, gas plants, and refineries as potential source categories of interest.

White Papers, produced singly or in phases, will lay out a regionally-consistent analysis protocol, list source categories/facilities for analysis, provide a control technology “clearinghouse”, and the evaluation criteria for the 4-factor analyses that are the core of this Task. The timing and format to finalize state’s control strategies options and public availability of the results of the 4-factor analysis will be addressed by the CM subcommittee. Sequential White Papers may be produced to facilitate states moving in a timely fashion through the multi-step analysis of source screening, 4-factor analysis, and control evaluation before potential emissions reductions are determined for final RPG modeling. Screening tools will provide an initial list of sources, while source apportionment modeling results will provide additional information for selecting sources for analysis by states. Criteria for the common application of screening tools (largest sources, Q/d, weighed emissions potential) and thresholds based on modeling to identify sources for control measures analysis will be developed for the white paper(s.) A BACT/RACT/BART clearinghouse of key source sectors controls will facilitate the four-factor control analysis, if needed.

The CM Subcommittee will evaluate the potential incorporation of visibility, as discussed in EPA guidance[[26]](#footnote-29), as a “fifth” factor in the control measures analysis. States will conduct control measures analyses throughout 2019 with the goal of identifying all 2028 control strategies and incorporating resulting emissions reductions from the final control measures in the 2028 emission inventory by the 4th quarter of 2019 in support of final modeling efforts.

**Task 6. Training and Outreach Materials**

During 2018, in response to state inquiries for additional training and the concern for a transparent and thorough dissemination of information, the RHPWG realized that there was a need for both instructional materials for State RH SIP writers and for educational materials for other public stakeholders. This new task was created to meet those ends. Both the Communication and Consultation and the Shared Database Subcommittees have planned to draft documents to explain technical materials and the planning process. Making the technical support material available and clearly understandable are important both types of end users. A critical link is showing how the technical information supports public policy.

The process for understanding what cause haze and how it affects visibility has technical bases in scientific measurement and analysis. The goal for reducing anthropogenic visibility impairment at the Class I Areas is a public good, explained in the Clean Air Act Amendments of 1977, but the metric for indicating progress in reducing the impact is not intuitive. The stepwise regulatory program that evolved from the statutory goal over the past over 40 years has been tempered by changes in the emissions causing haze, ensuing from both changes in natural environments and from improved technology for controlling anthropogenic emissions. In turn, measurement capabilities and the knowledge of atmospheric science has grown. Therefore this tasks will endeavor to collect materials describing the essence of what is known about measuring visibility and controlling anthropogenic contributions to haze at Class 1 Areas. The process of preparing SIPs includes explaining the measured data which forms the basis and justification for controlling emissions. Therefore the SIP writer needs to be able to understand and explain the technical data that justifies the basis of beneficial controls in a straightforward and understandable manner, for all the stakeholders affected.

This task endeavors to select the appropriate materials, to assure that they are understandable, and to make them available in an accessible format for SIP writers to use, whether for personal edification, or for outreach to the public. The RHPWG will work with the TSC and contractors, as needed, to make the information publically accessible on the internet, either through the TSS v.2 or the WRAP webpages. This is especially important to WRAP member entities because haze in the Western U.S. has very different causes form that in the eastern U.S. Generally speaking, visibility in the west is better on average than the east, but episodic and routine natural events characteristic of the western climate and geography also contribute more to haze than anthropogenic sources. Most of the Class 1 Areas are also in the fifteen western states. Existing reports, webinars, and presentations, will be utilized for much of the pertinent background materials, including what was prepared to support to WESTAR’s Core Five Principles that lead to the 2017 rule revisions. The Regional Haze Program has long term goals, to 2064, and the materials prepared for training and outreach will include the explanation of current data and its context in the long-term planning program

**Task 7. Technical Support System TSS v.2**

The TSS served as the data repository for the regional technical analyses supporting the first round of RHR SIPs. The TSS provided common data presentation for monitoring, emissions inventory, geographic weighted emission potential, source apportionment modeling, regional air quality modeling for base year and projection year inventories, and visibility progress compared to the uniform rate of progress for the Glide Path. For the second RH planning period, the intent is to archive the original TSS and to maintain TSS v.2 with the data sets generated in tasks 1-6 of this workplan. The Cooperative Institute for Research in the Atmosphere (CIRA) located at Colorado State University will continue to manage the TSS v.2 website.

The RHPWG will consult and coordinate with CIRA through the SD Subcommittee to ensure TSS v.2 meets the air quality planning needs of WRAP members and that data and project materials are posted and available for use in a timely manner. The RHPWG will coordinate with its subcommittees and the other Work Groups to ensure the availability of their data and work products for posting by CIRA. Monitor data, emission data, and modeling data, with associated analytical and graphic capabilities, as well as other work products such as protocols and white papers will be posted as they become available. The RHPWG will also develop explanatory materials for the TSS v.2 and host periodic progress reports as new tools become available through CIRA.

**Task 8. State Planning and SIP Adoption Process**

This Task has been included to highlight the necessary actions a State must take to prepare a SIP for review and public approval before submission to the U.S. EPA. This task serves as a placeholder for activities of the WRAP membership, that depend on the support of the WRAP’s shared databases, technical analyses, and results from various information sources to produce Regional Haze SIPs. This tasks identifies what states undertake to meet key planning target dates, set milestones for technical support, and assure key consultation points to meet state-identified SIP submission dates. Some member agencies plan submission of the comprehensive SIP revision as early as a year prior to the July 2021 deadline, which drives the schedule of the Work Plan tasks related to Regional Haze SIP preparation. Ultimately the SIP preparation process improves understanding of visibility impairment in the western U.S., an air quality concern and issue for WRAP membership.

In 2017, the RHPWG prepared a Gantt chart with planning timelines that formed the basis of the Regional Haze tasks and elements in the Work Plan. In 2018, the RHPWG’s Consultation and Coordination (C&C) Subcommittee established a consultation framework and identified key decision makers on issues between the WESTAR Council, WRAP Board, TSC, RHPWG and its Subcommittees, other WRAP Work Groups, WESTAR Committees, and WRAP project teams. The C&C compiled contacts lists of Tribes, FLMs, EPA Regional Offices, and state and local agencies engaged in regional haze planning to facilitate state regional haze planning and SIP adoption. A critical piece of the consultation framework is how to “ask” for emissions reductions from adjacent or nearby states, but consultation between WRAP member agencies and the FLM community is equally important. In addition to the formal 60-day FLM comment period, member agencies will consult with the FLM community early in the process on source screening for reasonable progress, consult on source controls and the underlying 4-factor analysis, and consult on long-term strategies, using the framework as described in a White Paper

For the revised Work Plan for 2019, elements of former Task 6, the Embedded Progress Report are being reworked and incorporated into other tasks. The EPA’s 2017 revision, including the status of implementation of BART controls. This task envisions 5-year progress reports for the year ending 2018 embedded in the comprehensive SIP revision completed by each State, due July 2021.

The RHPWG will consult and coordinate with Subcommittees, Work Groups, and states under the direction of the TSC to ensure the necessary information on monitoring programs and emissions changes for the embedded Progress Reports are available to states and posted on the TSS v.2 in a timely manner. Current visibility conditions, the visibility change from baseline and over the past 5 years, and changes in emissions using the most current data are necessary. The requirement to report on the changes to the inventory in other states whose emissions impact visibility in the reporting state, and the report on BART commitments, might be summarized in a single report. If collecting and collating the needed information from the states and the TSS cannot be accomplished through the RHPWG and the various Subcommittees, such as the SC and Coordination and Consultation (C&C) Subcommittees, then contractor support would be requested, at the end of 2019, for completion in early 2020.

Beginning in 2017 and continuing into 2019, WRAP membership has articulated the need for training in preparation of RH State Implementation Plans, using the stored data, technical expertise, research, and knowledge of WRAP members and support staff. This training and support are represented by two needs that can be fulfilled by members using WRAP resources. One is training State and Tribal staffs in SIP or TIP element preparation and actual document writing. The other is preparing materials in support of public outreach, including the required public review process, which States and Tribes need to promote better public understanding of the goals and benefits of the national Regional Haze and Visibility Protection Program. Therefore two new subtasks are created for 2019 related to internal education and external outreach. These tasks will largely be performed by WRAP members sharing techniques that build upon the Webinars and training already available on the WRAP website. Also, webinars at key junctures for the roll-out of deliverables from the Work Plan tasks will be the basis for subsequent consultation and coordination for SIP elements. WRAP members will work together through the RHPWG using WRAP website and other resources to prepare outreach materials to explain regional haze and visibility protection in the Western U.S. The RHPWG will work primarily through the SC and C&C Subcommittees to accomplish these activities.

**Task 9. RHPWG Administrative Tasks.**

The administrative tasks for the Regional Haze Planning Work Group acknowledges the time and coordination needed to keep sixty or so state and local representative informed and on a regulatory SIP production schedule, along with the forty or so participants from other federal and Tribal agencies who also serve in other Work Groups. Most of the hard work takes place in the smaller RHPWG Subcommittees, with membership in the range of 15-25 persons each, including contractors. Many of these Subcommittee “volunteers” also participate in more than one Subcommittee. The “facilitators’ (WRAP Regional Leads) from the Technical Steering Committee enable much of the work by developing contracts and managing contractor funding and schedules, and by supporting conference calls and webpage postings. Without the smooth integration of tasks and the dedication of all the active participants, progress in regional haze planning on a tight schedule (aka SIP preparation) would be even more daunting. The RHPWG co-chairs and Subcommittee Leads helped develop this Work Plan and intend to make certain that the additional 2019 conference calls effectively integrate with continuous task deliverables. Another goal is to make certain that the concurrent work for ozone planning in the other Work Groups is appropriately integrated into regional haze planning which is running on almost the same timeline as the SIP preparation for Moderate ozone non-attainment areas which are due August 4, 2021, a few days after the RH SIP submittal deadline.

Appendix C

**Fire and Smoke Work Group 2019 Workplan**

***Approved by FSWG members***

Both natural, unplanned wildfires and long-standing practices of planned, prescribed fire are important air pollution sources in the Western United States. For wildfire, the length of the fire season, and the duration and intensity of individual fires are increasing due to the build-up of natural fuels after years of public policy for restricting wildfire spread, and a warming climate. With a better understanding of the role of natural fire in maintaining the health of natural landscapes, public policy is evolving to balance the need for natural fires with the need for protection of human infrastructure and public health, through application of prescribed fire. Additionally, climate change results in altered weather patterns, shifts in the types and composition of natural landscape communities, and increased threats from biological pests on weakened and transitioning ecosystems. Periodic and sustained drought and pressure to expand human communities into the urban-wildland interface heighten the importance of understanding wildfire in the western United States. In recognition of the increasing contributions of wildfire smoke, in frequency and duration, to ambient air quality, the western states have formed cooperative tracking systems that are the technical basis for improved understanding of smoke from uncontrolled wildfires. This regional interstate cooperation supports preparation of State Implementation Plans (SIPs) for Regional Haze and criteria pollutants.

The Fire and Smoke Work Group will focus on analysis and planning activities related to improve activity data to support emissions inventories for fire and smoke emissions, begin scoping work to assess present and range of future year contributions of natural sources such as fire, undertake evaluation of Smoke Management Programs, survey and compile information about Exceptional Events assessment efforts, review the treatment of fire and smoke emissions in modeling studies, and improve coordination between state, tribal, and federal agencies. Several of these activities involve close coordination with other WRAP Work Groups as described in the FSWG Workplan.

**Duties and WRAP Staff Support**

In consultation with the Chair or Co-Chairs from the Fire and Smoke Work Group (FSWG), the Technical Steering Committee (TSC) will review and seek Board approval of a written workplan to address and include all the elements for each Work Group, specific to FSWG as described in Section I of the Annual WRAP Workplan. Based on these elements, the FSWG is then charged with creating detailed workplan inputs to the WRAP annual workplan for achieving these objectives. The FSWG workplan will include a schedule for progress reports to the TSC (quarterly and annual summary) and a schedule for project completion. The FSWG will work with WRAP staff to have progress reports posted to the WRAP website. The FSWG and other Work Groups are responsible for translating technical materials into a form understandable by the TSC, Board, and general public. The FSWG has the additional responsibility for ensuring the best information and data are available for air quality planning across the region, with WRAP Staff support.

The FSWG will have conference calls on alternating months to manage activities and provide oversight to WRAP projects. The FSWG will provide inputs to the TSC for an annual WRAP workplan and budget for Board approval, covering technical projects and Work Groups. The FSWG may have meetings identified in the annual workplan. The FSWG Chair or Co-Chairs will plan and direct the calls and meetings, and with assistance from WRAP Staff, take the lead in communications and other necessary TSC and Board interaction.

WRAP Staff will provide support for FSWG calls and meetings. WRAP Staff will assist with arranging and documenting FSWG calls and meetings, prepare TSC workplan inputs and budgets for review and action, assist with status reports on the FSWG’s activities, and provide status reports on the deliverables, budgets, and timelines for the WRAP’s technical projects.

**Processes**

The FSWG is to conduct their business on a consensus basis. Consensus has the following parameters:

* Consensus is agreement.
* Consensus is selection of an option that everyone can live with.
* Consensus may not result in the selection of anyone's first choice, but everyone is willing to support the choice.
* Consensus is not a majority vote.

When the FSWG cannot reach a consensus on an issue it will be referred to the TSC. If the TSC cannot reach a consensus on the issue it will be referred to the WRAP for resolution.

**Coordination**

Through the TSC, the FSWG will coordinate with the following work groups and committees as needed to ensure activities conducted in WRAP projects, and under the auspices of the FSWG provide needed support:

1. Tribal Data Work Group (TDWG);
2. Regional Technical Operations Work Group (RTOWG);
3. Oil and Gas Work Group (OGWG);
4. Regional Haze Planning Work Group (RHPWG)
5. WESTAR Planning Committee;
6. WESTAR Technical Committee; and
7. Other groups as designated by the Board in the annual Workplan process.

**FSWG Co-chairs**

Sara Strachan, Idaho Department of Environmental Quality

Josh Hall, U.S, Forest Service

**FSWG Status Report for 2017 Workplan**

The table below presents the FSWG’s progress on Work Group activities listed in the 2017 WRAP Workplan and lists outstanding work necessary to complete the task. Many of the outstanding tasks are included in the 2018-2019 Work Group activities.

| 2017 FSWG Task | 2017 Progress | Outstanding Tasks |
| --- | --- | --- |
| Activity Data to Support Emissions Inventory | -Review current functions of FETS/WRAP Tools: complete (Matt’s report)- Identify improvements to track activity and improve emissions estimates: complete (Matt’s report) | -Update state, tribal, and federal data streams- Add PFIRS tracking and SmartFire/Bluesky forecasting data streams |
| Determine present and range of future year contributions of natural sources |  | Synthesize current research- Report possible approaches to model future year contribution of natural sources |
| Evaluation of Smoke Management Programs | Review current state Smoke Management Programs: completed WA, OR, ID | Ongoing, need to review more states- Track, reference, and apply effects of SMPs on fire management-related regional haze controls on regional ozone and PM- Identify SMPs certified by states for use in prescribed burn exceptional event demonstrations |
| Exceptional Events | -Survey states planning on developing a mitigation strategy: complete- Compile elements of mitigation plans: complete- Identify key data to collect for EE demonstrations: complete | Need to put list on website and plan for regular updates |
| Smoke emissions modeling |  | -Identify and evaluate emissions and modeling for fire-related ozone background and regional transport evaluation- Specify modeling studies of fire emissions and impact analysis |
| Coordination between states/tribes/federal agencies |  | Establish how agencies coordinate during wildfire season and determine how to improve |

**FSWG Status Report for 2018 Workplan**

The table below presents the FSWG’s progress on Work Group activities listed in the 2018 WRAP Workplan and lists outstanding work necessary to complete the task. Many of the outstanding tasks are included in the 2019 Work Group activities.

| 2018 FSWG Task | 2018 Progress | Outstanding Tasks |
| --- | --- | --- |
|  |  |  |
| Determine present and range of future year contributions of natural sources | None. This will be a task for 2019. | Synthesize current research- Report possible approaches to model future year contribution of natural sources |
| Evaluation of Smoke Management Programs | Review current state Smoke Management Programs: completed WA, OR, ID | Ongoing, need to review more states- Track, reference, and apply effects of SMPs on fire management-related regional haze controls on regional ozone and PM- Identify SMPs certified by states for use in prescribed burn exceptional event demonstrations |
| Exceptional Events | -Survey states planning on developing a mitigation strategy: complete- Compile elements of mitigation plans: complete- Identify key data to collect for EE demonstrations: complete | Task completed. Deliverable ready for docket. |
| 2014 Fire Emissions Inventory | -Created an evaluation tool for the states to examine the 2014 fire inventory.-Received feedback from states and compiled results.-Determined main issues and implemented solution. | -Submit updated 2014 fire emissions to Ramboll for regional haze modeling. |
| Coordination between states/tribes/federal agencies | No progress. | Establish how agencies coordinate during wildfire season and determine how to improve |

**Action Items for 2019 FSWG Workplan**

The table below lists the FSWG action items for the 2019 WRAP Workplan. The information in this table is supplemented by the outline below, which provides some additional detail regarding the 2019 FSWG activities.

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliverable** | **Source** | **Funding** | **Timeline** |
| WRAP Tools/FETS Update and Operation | Workgroup, Matt Mavko | Request funds for Matt’s time. | 2019 |
| Evaluation of Smoke Management Plans | Workgroup | In-kind and contractor work. | 2019 |
| Multi-year baseline and Future Fire Activity and Emissions | Workgroup | In-kind and contractor work. | 2019 |
|  |  |  |  |
| Wildfire coordination between states/tribes on wildfire response and smoke management | Workgroup | In-kind work. | 2020 |

1. FSWG Management
	1. Finalize workgroup recruitment
	2. Schedule bi-monthly meetings
	3. Send quarterly reports to TSC
	4. Send yearly accomplishment narrative to TSC and WRAP board
	5. Schedule work project completion with milestones of progress
	6. Consider workshop/conference attendance to promote group’s work
2. WRAP Tools/FETS Update and Operation (contractor support needed)
	1. Restructure and update WRAP Tools/FETS based on survey
	2. Update data streams and continue collecting annual activity data to support emissions inventory
	3. Determine present trend of fire activity and emissions by state and ecosystem, and range of future year contributions of fire-related natural sources
	4. Promote use of updated FETS for regional coordination
	5. Propose methods for more timely information on planned burned with enhanced user roles
	6. Help establish new, better SMP data connections to FETS - outreach focused
3. Evaluation of Smoke Management Plans
	1. Review current state smoke management programs
	2. Track, reference, and apply effects of smoke management programs on fire management-related regional haze controls on ozone/PM/nitrogen
	3. Identify Smoke Management Plans certified by states for use in prescribed burn exceptional event demonstrations
4. Historic and Future Fire Activity and Emissions (contractor support needed)
	1. Identify potential methodologies to determine future year emissions (2023 [Ozone], 2028 [Regional Haze]) and multi-year baseline emissions
		1. Synthesize current research
		2. Report possible approaches and calculate ranges of model future year contribution of natural sources for air quality modeling
	2. Support for sensitivity testing for modeling platform (RTOWG, RHPWG)
5. Wildfire coordination between states/tribes on wildfire response and smoke management
	1. Determine how states, tribes, and federal agencies coordinate (or don’t) during wildfire season
	2. Identify ways to improve coordination

Appendix D

**2018-2019 WRAP Workplan**

**Oil and Gas Work Group Status Report**

**Final - February 20, 2018**

***Mid-Course Workplan Review & Update – DRAFT January 22, 2019 DRAFT***

***[DRAFT Development NOTE: The 2018-2019 WRAP Workplan called for a mid-course review. The updates contained herein are minor in nature and were identified during the OGWG mid-course review. The OGWG will seek approval by consensus of the Mid-Course Workplan Review & Update.]***

The Oil and Gas Work Group will focus on analysis and planning activities related to improve activity data to support emissions inventories for oil and gas emissions, and begin scoping work to assess the present and range of future year scope of emissions management programs by the variety of regulatory jurisdictions within the WESTAR-WRAP region, by agency. The OGWG will coordinate among state, tribal, local, and federal member agencies’ Oil & Gas programs, including review of modeling, monitoring, and control program assessment studies for Oil & Gas emissions. Several of these activities involve close coordination with other WRAP Work Groups as described in the OGWG Workplan.

The WRAP Workplan set up topical Work Groups including the Oil and Gas Work Group to *“promote understanding of the role of oil and gas in regional and local air quality plans.”* The WRAP Workplan also identified the following with respect to the topic of oil and gas.

*“The Intermountain Region is especially impacted by exploration and production emissions from the oil and gas industry, and the West more broadly by emissions from the transport and use of those fuels. NAAQS exceedances during winter in production regions of Utah and Wyoming have demonstrated localized effects, while the contributions from exploration and production in the wider region on summer ozone is still being assessed. In addition, this sector must be considered for Regional Haze planning. Studies currently point to improvements in the emissions inventory as being one of the most needed products to improve performance of the air quality models. Current projects and funding opportunities make improvements in these areas likely in the 2016-17 timeframe. This is a rapidly changing sector due to variations in commodity prices, technology innovations, and emerging regulatory programs.”* - Annual WRAP Workplan approved by the WRAP Board May 9, 2016

Duties and WRAP Staff Support

In consultation with the Co-Chairs from the Oil and Gas Work Group (OGWG), the Technical Steering Committee (TSC) will review and seek WRAP Board (Board) approval of a written workplan to address and include all the elements for each Work Group, specific to OGWG as described in Section I of the Annual WRAP Workplan. Based on these elements, the OGWG is then charged with creating detailed workplan inputs to the WRAP annual workplan for achieving these objectives. The OGWG workplan will include a schedule for progress reports to the TSC (quarterly and annual summary) and a schedule for project completion. The OGWG will work with WRAP staff to have progress reports posted to the WRAP website. The OGWG and other Work Groups are responsible for translating technical materials into a form understandable by the TSC, Board, and general public. The OGWG has the additional responsibility for ensuring the best information and data are available for air quality planning across the region, with WRAP Staff support.

The OGWG will have conference calls on alternating months to manage activities and provide oversight to WRAP projects. The OGWG will provide inputs to the TSC for an annual WRAP workplan and budget for Board approval, covering technical projects and Work Groups. The OGWG may have meetings identified in the annual workplan. The OGWG Co-Chairs will plan and direct the calls and meetings, and with assistance from WRAP Staff, take the lead in communications and other necessary TSC and Board interaction.

WRAP Staff will provide support for OGWG calls and meetings. WRAP Staff will assist with arranging and documenting OGWG calls and meetings, prepare TSC workplan inputs and budgets for review and action, assist with status reports on the OGWG’s activities, and provide status reports on the deliverables, budgets, and timelines for the WRAP’s technical projects.

Processes

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• Consensus is agreement.

• Consensus is selection of an option that everyone can live with.

• Consensus may not result in the selection of anyone's first choice, but everyone is willing to support the choice.

• Consensus is not a majority vote.

When the OGWG cannot reach a consensus on an issue it will be referred to the TSC. If the TSC cannot reach a consensus on the issue it will be referred to the WRAP for resolution.

Coordination

Through the TSC, the OGWG will coordinate with the following work groups and committees as needed to ensure activities conducted in WRAP projects, and under the auspices of the OGWG provide needed support:

1. Tribal Data Work Group (TDWG);
2. Regional Technical Operations Work Group (RTOWG);
3. Fire and Smoke Work Group (FSWG);
4. Regional Haze Planning Work Group (RHPWG);
5. WESTAR Planning Committee;
6. WESTAR Technical Committee; and
7. Other groups as designated by the Board in the annual Workplan process.

OGWG Structure

The OGWG Co-Chairs were designated by the TSC and approved by the WRAP Board to lead and execute the Workplan objectives associated with the OGWG. OGWG members have applicable oil and gas expertise and provide appropriate geographic representation from the WRAP member agencies (state, tribal, local, federal) to the greatest extent possible. OGWG members will be approved by the TSC. All OGWG Co-Chairs and members are appointed for two-years. Additional individuals with applicable oil and gas expertise will be encouraged to participate in the OGWG as advisors. The OGWG structure, including identification of Co-Chairs, members, and advisors is attached and will be updated as necessary.

Project Teams

Project Teams are intended to enable non-members of the WRAP to express interest and sponsor analysis or planning projects within the scope and topics of the WRAP Charter and Strategic Plan. Project Teams will be associated with a discrete, defined project for which the non-member sponsor is providing funding and expertise resources. The Project Teams are intended to allow sponsor participation and will include members of WRAP Work Groups and TSC, WRAP Staff, and non-member sponsors. Information will be included in the Annual Workplan to define the scope, membership and duration of each Project Team.

Project Teams that may be beneficial to the OGWG as future funding allows:

● Continue the Drill Rig 1-hour NO2 Collaborative Study

● Implement the Collaborative Air Landscape-Scale Management Pilot (CALM) Study – Oil and Gas development impacts in the intermountain west

Project Team Update:

● CALM Study

The CALM Study is awaiting federal funding for implementation.

● Drill Rig 1-hour NO2 Collaborative Study

The purpose of this Study is to collect ambient measurements adjacent to operating drilling rigs to evaluate actual 1-hour NO2 impacts from drilling operations. In addition, sufficient data would be collected regarding emissions from drilling operations that could be used to verify NO2 air quality models. The data were collected during two field studies in the fall of 2014. One field study was conducted in the Denver-Julesburg Basin of Colorado and the other was conducted on the north slope of Alaska.

To provide direction and guidance for the Study, the Study participants formed a Study Management Team involving the BLM, EPA OAQPS, Wyoming DEQ, and API. WESTAR and WRAP provide overall administrative and other assistance to the Study Management Team. The Study Management Team has continued efforts to seek additional funding for contractor assistance with the Study and additional funding was secured in 2017. Continued contractor assistance through WESTAR will provide for general study coordination and data analysis coordination.

A Model Evaluation Workgroup was formed to further process the Alaska and Colorado field studies data and to conduct the modeling to assess model performance. EPA is providing leadership for two functional Working Groups that have been active since late 2015 to review, analyze, and reformat the field studies data, which will be followed by dispersion modeling to assess model performance compared to the collected ambient data. With the additional funding, consulting services will assist the work of the Working Groups.

Once the work of the Working Groups is complete, they will summarize and document findings and conclusions, perhaps in technical journal articles, and then submit recommendations to the EPA for making improvements to applicable regulatory dispersion models. Available funding is anticipated to provide Study support through mid-2018.

2016-2017 OGWG Activity Summary

The OGWG formation began in 2016 by seeking members and advisors with oil and gas expertise from the WRAP member agencies (state, tribal, local, federal) and culminated with the TSC approval of OGWG members February 9, 2017. The OGWG formation also involved development of the OGWG 2017 Workplan, which was approved by Consensus January 10, 2017. The OGWG conducted ten (10) conference calls in 2016-2017 with an average of 14 participants including OGWG co-chairs, members, and advisors, WRAP staff, TSC and RHPWG co-chairs, and contractors. Progress on 2017 OGWG Workplan Tasks is captured in the deliverables table below.

| **Oil & Gas****Work Group** |  **2017 Deliverable** | **Source** | **Funding** | **Timeline** | **2017 Progress** |
| --- | --- | --- | --- | --- | --- |
|  | Develop communication plan to distribute Oil and Gas Work Group work products | Workgroup | In-kind work, WRAP Budget SharePoint Development | 2nd Quarter 2017  | Complete/Ongoing:*[www.wrapair2.org/OGWG.aspx](http://www.wrapair2.org/OGWG.aspx)*Materials posted include call agendas, call notes, pertinent documents, finalized work products, and upcoming call dates |
|   | Identify Oil and Gas Work Group action items that will require coordination with WRAP and WESTAR work groups and committees | Workgroup | In-kind work | 2nd Quarter 2017 | Ongoing:-Aug. & Sept. ‘17 OGWG Conf. Calls w/ RHPWG Co-Chairs-Identify coordination need(s) for 2018-2019 tasks |
|   | Oil and Gas Work Group Scope: Identify Oil and Gas sources for the entire upstream and midstream sectorsIdentify WRAP member agencies dealing with oil and gas sources | Workgroup | In-kind work | 2nd Quarter 2017 | Complete:-Oct. ’17 Oil and Gas Emission Sources approved by Consensus-June ’17 identified WRAP Member Agencies |
|   | Review Oil and Gas Specific Work Products: review existing work products to identify and discuss relevance, strengths, areas for improvement, and gaps | Workgroup will initiate and continue to explore if additional assistance is necessary | Initiate in-kind work and continue to explore if funding is necessary | 4th Quarter 2017 | Underway:Incorporated into Road Map Scope of Work approved by Consensus Oct. ’17 for contracted support |
|   | Identify regional and local air quality planning needs: Regional Haze, Ozone, Climate Change, Hazardous Air Pollutants, and Other Air Pollution Indicators | Workgroup will initiate and continue to explore if additional assistance is necessary | Initiate in-kind work and continue to explore if funding is necessary | 4th Quarter 2017 | Ongoing through coordination with TSC and RHPWG |

2018-2019 OGWG Workplan Action Items

OGWG 2018-2019 Workplan activities were developed in the 2018-2019 Workplan Master Task List and approved as such relate to the Gantt Chart. The OGWG Workplan activities are incorporated below and are associated with Regional Haze Planning Technical Support as well as Associated Regional Analysis Technical Support.

Task 12.1 Regional Haze Planning Technical Support

2.0 Emissions Inventory (Emission Inventory Development) – Feb 2018 – April 2019

*OGWG: The Western Regional Air Partnership (WRAP) Oil and Gas Workgroup (OGWG) has developed the “WRAP OGWG Road Map Scope of Work” (November 2017) which will guide efforts on all O&G related Regional Haze Planning Technical Support tasks.*

2.1 Process 2014 NEI and refinements (base year modeling) – Feb-May 2018

2.1.1 Incorporate inventory data from OGWG, FSWG, and TDWG

2.1.1.1 Deliver WRAP O&G inventory, ensuring no double counting of interstate O&G fields

*OGWG: The OGWG will identify and review existing oil and gas specific work products. Relevant strengths, areas for improvement, and gaps will be identified. Particular attention will be given to base year emissions inventory emission factors, calculation methods, assumptions and tracking of emissions reduction regulations, data completeness for minor source / midstream facilities, data for non-point sources not reporting directly to air agencies, and other topics.*

*The OGWG will develop regionally consistent base year oil & gas emissions inventories for the WRAP Region. The base year emission inventories will utilize work products with the most relevance and strength as the basis to focus on areas for improvement and gaps. To the extent feasible, technical improvements to emissions inventories will be made. Emission factor, speciation profiles, and spatial surrogate information will be identified for oil and gas sources. Reconciliation with existing inventories would be performed to ensure no double counting.*

*The OGWG will leverage work performed to develop the WRAP oil and gas base year inventory (version 1) to review 2016 Modeling Platform base year emissions.*

2.1.2 Refine base year inventory

2.1.2.1 States review minor source/area emission inventory

*OGWG: The draft inventory developed in 2.1.1.1 will be reviewed by state, local, and tribal agencies. Any necessary updates would be made to the final base year emission inventories.*

2.1.2.2 Consider sectors for refinement (O&G, Canada/Mexico, natural marine, offshore shipping, global, episodic dust storms, wildfires (average for 2028 projection), agricultural/industrial/mobile ammonia, prescribed fire projections, lightning NOx) from 2021 WESTAR Regional Haze SIP Workplan, page 14

*OGWG: The OGWG will identify and review existing oil and gas specific work products. Relevant strengths, areas for improvement, and gaps will be identified. Particular attention will be given to base year emissions inventory emission factors, calculation methods, assumptions and tracking of emissions reduction regulations, data completeness for minor source / midstream facilities, data for non-point sources not reporting directly to air agencies, and other topics.*

*The OGWG will develop regionally consistent base year oil & gas emissions inventories for the WRAP Region. The base year emission inventories will utilize work products with the most relevance and strength as the basis to focus on areas for improvement and gaps. To the extent feasible, technical improvements to emissions inventories will be made. Emission factor, speciation profiles, and spatial surrogate information will be identified for oil and gas sources. Reconciliation with existing inventories would be performed to ensure no double counting.*

*The OGWG will gather information through a survey that will be sent to agencies and then operators in select oil and gas basins. Additional contract assistance is necessary to transition the survey from agencies to operators.*

2.3 Develop and refine 2028 emission inventories – December 2018 - Summer 2019

2.3.1 Determine and adjust emissions as needed for source apportionment and sensitivity scaling of base year and 2028 Inventories

2.3.1.1 Determine and process 2028 emissions for modeling of on-the-way/on-the-books controls

2.3.1.2 Determine and process 2028 emissions for modeling of Additional Reasonable Controls scenarios

*OGWG: The OGWG will identify and review existing oil and gas specific projection methodologies. Relevant strengths, areas for improvement, and gaps will be identified. Particular attention will be given to emissions inventory projections and potential consideration of historic growth, supply, demand, production decline, control, and/or efficiency/effectiveness factors as well as spatial distribution.*

*The OGWG will develop regionally consistent 2028 forecast (OTB & OTW controls) emissions inventory for the WRAP region. Projection methodologies with the most relevance and strength will be used as the basis to focus on areas for improvement and gaps. Historic growth, supply, demand, and production decline; a range of forecast year oil and gas scenarios; OTB & OTW Controls for oil and gas sources; and spatial surrogates will be identified.*

*The OGWG will leverage work to-be completed on WRAP oil and gas future year inventory development to describe oil and gas activity forecast methods for EPA to implement in future year emission inventory development.*

3.0 Air Quality Modeling (Visibility and Source Appointment Modeling) – Feb 2018-early 2020

3.4 Conduct sensitivity testing (boundary conditions, fire emissions, grid size, climate change) – Summer – Winter 2019

*OGWG: No specific tasks/deliverables have been identified for this task. Base year and future year emission inventory development will inform this analysis. Potential changes (e.g. widespread implementation of tankless sites) and/or uncertainties in upstream emissions (e.g. high emitters) could be evaluated.*

4.0 Analyzing Future Year Modeling Results (Analysis of Modeling Results) – Feb 2018-early 2020

4.2 Sensitivity and Control Strategy Evaluation Modeling for 2028 projections – Fall 2019-early 2020

*OGWG: The OGWG will compile a comprehensive list of local, state, and federal regulations applicable to developing a controls analysis for O&G emission inventory forecasts in the WRAP region, noting applicable pollutants, geographical area(s) and source categories; applicability to existing, new, and/or modified sources. Approaches taken to apply controls to emission inventories will be identified.*

*The OGWG will develop regionally consistent 2028 control scenario future year emission inventory/inventories. The 2028 control scenario inventory/inventories will consider additional Reasonable Controls for oil and gas sources, rule penetration and effectiveness, and spatial surrogate information.*

* 1. Control Measure Analysis (Reasonable Progress Analysis) – Jan-Dec 2019

5.3 Conduct Regional/State Source Screening – April - late 2019

5.3.3 O&G sector focus on production engines, heaters/treaters, point vs. non-point tracking/permitting, fugitive dust, reconcile VOC emission estimates with observations

5.3.3.1 Address elements of WESTAR-BLM-NM AQB 4 Corners modeling study work

*OGWG: Analyses and deliverables for this task have not yet been decided on by the OGWG. Base year and future year inventory development and control scenario analyses will inform source screening.*

Task 12.2 Oil and Gas Associated Regional Analysis Technical Support

* + 1. Regional and Local Air Quality Planning Needs

*The Regional Haze Planning Technical Support deliverables may also be relevant to regional and local air quality planning needs for ozone and other air pollution indicators. Further, the effort by the OGWG to develop data and implement the results from the Regional Haze Planning Technical Support tasks will underpin a wide variety of air quality planning activities in the WESTAR and WRAP region for the next several years.*

* + 1. Identification and Review of Member Agency Oil & Gas Programs

*Identification and review of member agency oil and gas programs to provide information on existing programs such as requirements for permitting and registration, emissions management, emission inventory, modeling, and monitoring. This task will also include the identification and discussion of information strengths, areas for improvement, and gaps. The OGWG will discuss needs of agencies without existing oil and gas programs and develop a basic oil and gas program example.*

* + 1. Identification and Review of Member Agency Emissions Management

*Identification and review of member agency oil and gas emissions management to provide information on existing and proposed emissions management requirements by state, tribal, local, and federal agencies. This task will also include the identification and discussion of potential requirement overlap and authority concerns.*

* + 1. Assess Impacts from Oil and Gas Production

*Assess benefits from oil and gas production as well as the associated environmental compliance costs to the regional economy. This task will also include the identification of commonalities and differences in oil and gas production, resource uses, and management programs in the WRAP region.*

* + 1. Develop Oil and Gas Tool Box

*Utilize the data and results from the Regional Haze Planning Technical Support tasks to develop an oil and gas tool box with the ability to project future scenarios and trend assessments. Variables to be considered in the development of a tool box include methodologies, emissions, controls, production types and techniques, etc.*

* + 1. Member Agency Collaboration on Sub-Regional Oil and Gas Management

*Evaluate and identify opportunities for state, tribal, local, and federal agencies to collaborate on sub-regional oil and gas management matters.*

Appendix E

**Regional Technical Operations Work Group 2018-2019 Workplan**

Draft RTOWG Workplan Update

(To be reviewed by RTOWG 1/31/19)

The WRAP Workplan established topical Work Groups including the Regional Technical Operations Work Group (RTOWG). Since its inception in the WRAP Strategic Plan and Vision Statement, the mission statement for RTOWG is to, “Provide a forum for regional collaboration on technical and planning topics of common interest to the members”. Over the past several years, various efforts by regional, federal, state, and local groups have developed infrastructure upon which the RTOWG can effectively build a forum for regional collaboration for technical analysis and planning. The modeling center selected by the RTOWG for regional modeling in this workplan is the [Intermountain West Data Warehouse](https://views.cira.colostate.edu/iwdw/) the Intermountain West Data Warehouse (IWDW – Western Air Quality Study (WAQS). The IWDW -WAQS modeling center will be directly applying its resources to support and deliver WRAP regional modeling work efforts described in this workplan, readily adaptable for air quality planning purposes for the NAAQS, Regional Haze, and other programs, utilizing available resources from, and through coordination with, sponsoring agencies of the IWDW-WAQS and WRAP members.

The focus of the Regional Technical Operations Work Group includes:

* Regional analysis in support of planning activities related to emissions and modeling for regional haze, ozone, PM, and other indicators;
* Background and regional transport, international transport, sensitivity and other analyses of emissions data focused on the western U.S.;
* Perform and leverage modeling, data analysis, and contribution assessment studies;
* Investigation of “background ozone” impacts to western U.S. locations;
* Coordination and collaboration with the WRAP member-sponsored IWDW-WAQS regional air quality modeling groups including NW-AIRQUEST, EPA-OAQPS, and other state and local agencies performing regional modeling;
* Provide guidance on more complete and uniform model performance evaluations (MPEs);
* Several of these activities involve close coordination with other WRAP Work Groups and Subcommittees of the Regional Haze Planning Work Group as described in the WRAP Workplan.

The WRAP Regional Technical Center, in the form of the IWDW-WAQS, will provide data support and decision support for air quality planning in the WRAP region and will be comprised of three components. The -WAQS website provides storage of all the data required to support regional air quality modeling including meteorological, emission inventories, air quality modeling platforms, and monitoring data, and the t he website hosts the results of a variety of western air quality modeling activities. The IWDW -WAQS provide the data support. Planning decision support will be in the form of the [Technical Support System v2](http://views.cira.colostate.edu/tssv2/) (TSSv2) , which will provide access to a variety of data, work products, and data analysis capabilities to support air quality planning activities. The WRAP Regional Technical Center will be the collective of the IWDW-WAQS and TSSv2 efforts..

The work that the RTOWG does and oversees often uses guidance provided by EPA and others. The EPA’s Air Quality Modeling Group (AQMG) provides guidance documents to EPA Regional, State, and Tribal air quality management authorities and the general public on how to prepare attainment demonstrations for National Ambient Air Quality Standards (NAAQS) and the Regional Haze Rule using air quality modeling and other relevant technical analyses. These guidance documents are primarily directed at modeling applications in nonattainment areas but are also useful for modeling in maintenance areas or to support other rules or sections of the Clean Air Act. These guidance documents recommend procedures for estimating if a control strategy to reduce pollutant emissions (e.g., ozone precursors) will lead to attainment of the appropriate NAAQS or visibility metric. . These guidance documents are periodically updated or new documents published at the discretion of EPA-OAQPS. Some of the current applicable guidance documents include:

* [Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM2s, and Regional Haze.](https://www3.epa.gov/ttn/scram/guidance/guide/Draft_O3-PM-RH_Modeling_Guidance-2014.pdf) (3.25 MB, PDF) - December 2018 - Updated Ozone, PM2.5, and Regional Haze modeling guidance document.
* [Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze.](https://www3.epa.gov/ttn/scram/guidance/guide/final-03-pm-rh-guidance.pdf) (1 MB, PDF) - April 2007 - Final version of the Ozone, PM2.5, and Regional Haze modeling guidance document.
* [Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations](https://www.epa.gov/sites/production/files/2017-07/documents/ei_guidance_may_2017_final_rev.pdf) (149 pp, 1 MB, July 2017)

Duties of the RTOWG and WRAP Staff Support

In consultation with the Chair or Co-Chairs from the RTOWG, the Technical Steering Committee (TSC) will review and seek Board approval of a written workplan to address and include all the elements for each Work Group, specific to RTOWG as described in Section I of the Annual WRAP Workplan. Based on these elements, the RTOWG is then charged with creating detailed workplan inputs to the WRAP annual workplan for achieving these objectives. The RTOWG workplan will include a schedule for progress reports to the TSC (quarterly and annual summary) and a schedule for project completion. The RTOWG will work with WRAP staff to have progress reports posted to the WRAP website. The RTOWG and other Work Groups are responsible for translating technical materials into a form understandable by the TSC, Board, and general public. The RTOWG has the additional responsibility for ensuring the best information and data are available for air quality planning across the region, with WRAP Staff support.

The RTOWG will have conference calls on a regular basis and as needed to manage activities and provide oversight to WRAP projects. The RTOWG will provide inputs to the TSC for an annual WRAP workplan and budget for Board approval, covering technical projects and Work Groups. The RTOWG may have meetings identified in the annual workplan and will leverage IWDW-WAQS periodic technical meetings to review and discuss work products related to the regional modeling platform. The RTOWG Chair or Co-Chairs will plan and direct the calls and meetings, and with assistance from WRAP Staff, take the lead in communications and other necessary TSC and Board interaction.

WRAP Staff will provide support for RTOWG calls and meetings. WRAP Staff will assist with arranging and documenting RTOWG calls and meetings, prepare TSC workplan inputs and budgets for review and action, assist with status reports on the RTOWG’s activities, and provide status reports on the deliverables, budgets, and timelines for the WRAP’s technical projects.

Processes

The RTOWG is to conduct their business on a consensus basis. Consensus has the following parameters:

* Consensus is agreement.
* Consensus is selection of an option that everyone can live with.
* Consensus may not result in the selection of anyone's first choice, but everyone is willing to support the choice.
* Consensus is not a majority vote.

When the RTOWG cannot reach a consensus on an issue it will be referred to the TSC. If the TSC cannot reach a consensus on the issue it will be referred to the WRAP for resolution.

Coordination

Through the TSC, the RTOWG will coordinate with the following work groups and committees as needed to ensure activities conducted in WRAP projects, and under the auspices of the RTOWG provide needed support:

1. Tribal Data Work Group (TDWG);
2. Fire and Smoke Work Group (FSWG);
3. Oil and Gas Work Group (OGWG);
4. Regional Haze Planning Work Group and Subcommittes (RHPWG);
5. WESTAR Planning Committee;
6. WESTAR Technical Committee; and
7. Other groups as designated by the Board in the annual Workplan process.

The RTOWG will hold conference calls on a regular basis and as needed with members to provide an update on activity status and coordinate future work. Initial calls will be held monthly Additional calls will be schedule as needed especially for topics of higher interest. A survey of topics will be provided to RTOWG members to identify and prioritize areas of interest.

Agendas, reports, and other documents will be shared with the existing IWDW infrastructure. Information in regards to the IWDW-WAQS can be found at: <http://views.cira.colostate.edu/tsdw/>and on the WRAP’s regional haze planning website at:<http://www.wrapair2.org/RHPWG.aspx>**.**

RTOWG Structure

The structure of the RTOWG is very similar to the other work groups. The RTOWG Co-Chairs were designated by the TSC and approved by the WRAP Board to lead and execute the Workplan objectives associated with the RTOWG. RTOWG members are from the WRAP member agencies and represent Federal, State, Local and Tribal agencies and also represent a geographic expanse and interest across the WESTAR-WRAP region. RTOWG members generally have technical expertise in ambient air monitoring, emission inventory development, air quality modeling, data analysis, and regulatory expertise. RTOWG members are approved by the TSC. All Co-Chairs and members are appointed for two-years.

Additional individuals that are not Co-Chairs and members of the RTOWG with technical expertise are also encouraged to participate in the RTOWG as advisors. The RTOWG structure, including identification of Co-Chairs, members, and advisors is included as part of the overall work plan.

RTOWG Status Report for 2017 Workplan

|  |  |  |
| --- | --- | --- |
| 2017 RTOWG Task | 2017 Progress | Outstanding Tasks |
| 1. RTOWG Management
 | ongoing | ongoing |
| II. Coordinate with other Work Groups to identify air quality modeling products that will be relevant to their Workplans | ongoing;  | ongoing |
| III. Participate in upcoming science conferences | Co-Chairs and members of the RTOWG were present at all the conferences and workshops listed in the 2017 workplan. | New planning workshops and conferences are listed for the 2018 workplan |
| IV. Leverage opportunities and work by WRAP member-sponsored technical centers as well as other technical and scientific groups to: | ongoing | ongoing |
| V. Provide modeling Coordinate with Federal Land Managers (FLM) to discuss possible transfer of modeling products to FLAG. | ongoing | ongoing |

RTOWG Status Report for 2017 Workplan – was this supposed to edited?

|  |  |  |
| --- | --- | --- |
| 2017 RTOWG Task | 2017 Progress | Outstanding Tasks |
| 1. RTOWG Management
 | ongoing | ongoing |
| II. Coordinate with other Work Groups to identify air quality modeling products that will be relevant to their Workplans, especially for regional work in support of Regioanal Haze planning | ongoing;  | ongoing |
| III. Participate in upcoming science conferences | ongoing | ongoing |
| IV. Leverage opportunities and work by WRAP member-sponsored modeling efforts as well as other technical and scientific groups. | ongoing | ongoing |
|  |  |  |

The RTOWG has completed a [Modeling Representativeness Analysis](http://www.wrapair2.org/RTOWG.aspx). The results of this analysis compare the ambient measurement data, meteorology, emissions inventory and other factors such as exceptional events that may influence the decision to use one base year (i.e. 2014 vs. 2016) over another. This work anchors the understanding of applying 2014 and 2016 modeling platforms described below in this workplan

RTOWG Action Items for 2018-2019 WRAP Workplan

Action Items for the 2018-2019 Workplan

1. RTOWG Management
	1. Recruit and retain RTOWG membership and advisors based on geographic representation, WRAP member agency representation and technical expertise. Maintain the RTOWG Members + Advisors and WG Co-Chairs and WG rosters spreadsheet
	2. Schedule and facilitate monthly conference calls or meetings. Schedule and facilitate additional calls on an as needed basis.
	3. Quarterly reports to TSC
	4. Yearly accomplishment narrative to TSC and WRAP board
	5. Schedule for work project completion with milestones of progress
2. Coordinate with other Work Groups to identify air quality modeling products that will be relevant to their Workplans, in particular, those tasks specifically listed in Section III of the TSC workplan with the accompanied Gantt chart.

* 1. Tribal Data Work Group
		1. Simulated air quality impacts and comparison to Tribal monitoring sites
		2. Identifying regions of high air pollutant impacts
	2. Fire and Smoke Work Group
		1. Coordinate fire emission inventory development suitable for air quality modeling
		2. Evaluate impacts from fire emissions on regional air quality
	3. Oil and Gas Work Group
		1. Coordinate oil and gas inventory development suitable for air quality modeling
		2. Evaluate impacts from oil and gas emissions on regional air quality
	4. Regional Haze Planning Work Group and its Subcommittees
		1. pending additional direction – this needs text added
1. RTOWG will oversee and facilitate the following high-level Tasks which will be provided principally by contractor services, with in-kind effort and support from RTOWG members. Ttask examples below will require summary reports at their completion to document approach, assumptions, results, et cetera. Additional detail for planned analysis and modeling schedule is displayed in the table below the list of example tasks.
	1. Monitoring and Data analysis for most representative modeling year and modeling performance evaluation
	2. Dynamic Model Evaluation to assess Regional Haze
	3. Selection of global model simulations to be used for boundary conditions, and method for estimating natural and anthropogenic contributions to boundary conditions.
	4. Base Year (i.e. 2014 or 2016) emission processing including those inventories provided by the other work group
	5. Base Year Meteorological Modeling and meteorological model performance
	6. Base Year Air Quality Modeling
	7. Baseline period (i.e., 2013-17) representative emissions and air quality modeling for Regional Haze planning projections
	8. Future Year (i.e. 2028) emissions processing
	9. Future Year Air Quality Modeling
	10. Source Apportionment/Sensitivity Modeling
	11. Technology transfer/Make modeling platform available through the IWDW

Planned Regional Analysis and Modeling Schedule

|  |  |  |  |
| --- | --- | --- | --- |
|  | 2018 | 2019 | 2020 |
|  | Dec | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | March |
| Shakeout | 2014 Base Year Modeling **Platform v1 Shakeout** - Emissions Processing, Met Modeling/MPE, Global Modeling/MPE, AQ Modeling/MPE, Modeling Plan (RTOWG and contractor team)  |   |   |   |   |   |   |   |   |   |   |   |   |
| Project |   |   |   | 2014 Base Year Modeling **Platform v2** and 2013-2017 Representative Baseline Development - Processing of revised Emissions, AQ Modeling/MPE (RTOWG, EI&MP SC, and modeling contractor team) |   |   |   |   |   |   |   |   |   |
|  | OGWG Base Year Inventory Development and Finalization |   |   |   |   |   |   |   |   |   |   |   |
|  | FSWG Base Year Inventory Development |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Task 1 | Completion of RH Monitoring Data Analysis **Round 1** (MGSSC and contractor) |  |   |   |   |   |   |   |   |   |   |   |   |   |   |
|  |   |  |   | RH Monitoring Data Analysis **Round 2** (contractor for MGSSC)  |   |   |   |   |   |   |   |   |   |
| Task 2 |   |   |   |   |   | Dynamic Model Evaluations for Regional Haze Progress to Date (RTOWG and contractor team)  |   |   |   |   |   |   |   |
| Task 3 |   |   |   |   |   |   | Assessment / possible application of data for 2016 & projections - National Collaborative Emissions Modeling Platform (RTOWG and contractor team)  |
| Task 4 |   |  |   |   | 2023 and 2028 On-the-books Emission Inventory Development (RTOWG, EI & MP SC, and contractor team)  |   |   |   |   |   |   |
|  | OGWG On-the Books 2028 Inventory Development  |   |   |   |   |   |   |   |   |   |
|  |   |   |   |   |   |   | OGWG Additional Reasonable Controls 2028 Inventory Development  |   |   |   |   |   |   |   |
|  | FSWG Future Year Inventory Development |   |   |   |  |   |   |   |   |   |   |   |   |
| Task 5 |   |   |   |   |   |   |   |  | 2023 and 2028 On-the-books Air Quality Modeling (RTOWG and contractor team)  |   |   |   |   |   |
| Task 6 |   |   |   |   |   |   |   |   |   | 2028 Source Apportionment / Sensitivity / Control Scenarios Modeling (RTOWG and contractor team)  |
| Task 7 | Data and Documentation Delivery (SDSC with modeling contractor team and IWDW / TSSv2 team)  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **Detailed 2014 Modeling Platform Development and Shakeout Activities** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 2018 | 2019 |  |  |  |  |  |  |  |  |  |
|  | Dec | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec |  |  |  |  |  |  |  |  |  |
| Task 1 | Develop and Finalize Modeling Plan |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| Task 3 | Update 2014 NEI with State comments |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| Task 7 | Single-Source Modeling Webinar and memo |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| Task 3 |   | 2014 Emissions Modeling and Reporting / Transfer to IWDW |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| Task 4 |   | 2014 Met Modeling, MPE, and Reporting / Transfer to IWDW |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| Task 5 |   | Process Global Modeling for BC / Transfer to IWDW  |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| Task 3 |   |   | 2014 Emissions Summary Reporting |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| Task 6 |   |   | 2014 PGM Configuration, MPE, Annual Runs, Sensitivity Testing, and Reporting / Transfer to IWDW |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| Task 12 |   |   |   | Shakeout Close-out Meeting |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |

1. Participate in upcoming science conferences – regional and national meetings and workshops as they are scheduled.

As time permits and WRAP members’ interest warrants in 2019, organize and facilitate the bi-annual workshop on western modeling and emission inventory efforts.

1. Leverage opportunities and work by WRAP member-sponsored technical centers as well as other technical and scientific groups to:

* 1. Investigate “background ozone” impacts to western U.S. locations, utilizing recommendations from the March 28-29, 2017 Background Ozone workshop and subsequent journal publication
		1. Coordinate western regional ozone analyses with the planned collaborative effort among BAAQMD, CARB, and the Coordinating Research Council (CRC).
		2. Coordinate and collaborate with other WRAP member-sponsored regional air quality modeling groups including IWDW, NW-AIRQUEST, EPA-OAQPS, BAAQMD, and other state and local agencies doing regional ozone modeling.
		3. Develop an assessment protocol for modeling studies to understand international anthropogenic contribution to include trans-Pacific sources, Mexico and Canada sources, and “natural” sources
		4. Assess coordination opportunities with academic and other modeling groups.
	2. Provide guidance on more complete and uniform model performance evaluations (MPEs)
		1. Identify key model performance statistics and representative figures to apply to regional air quality and meteorology simulations.
		2. Discuss/specify what we mean by “benchmarks” in the context of model evaluation.
		3. Work with IWDW-WAQS, EPA OAQPS
		4. Reference docs
		5. Identify outcomes and committed participants to write and test
	3. Develop and implement a protocol to use the IWDW-WAQS capabilities as the WRAP Regional Technical Center
		1. Assess the adequacy of a 12 km grid resolution modeling platform and develop procedures for nesting down from 12 to 4 km grid resolution if needed.
		2. Evaluate additional modeling year (i.e. 2015, 2016) that fall outside the triannual NEI (i.e. 2014)
		3. Assess expansion and grid resolution of IWDW-WAQS modeling domain
		4. Address the IWDW-WAQS expansion to include additional states of MT, ND, SD
		5. Address any additional expansion to add other western and central states?
1. RTOWG Administration
	1. Development of budgets for projects as resources are available
	2. Summary budget for RTOWG activities
	3. Write and track progress on 2018-19 RTOWG work plan

Appendix F

**Tribal Data Work Group 2018-2019 Workplan**

There are 480 federally recognized Tribes within the 15 states that comprise the Western Regional Air Partnership (WRAP) area of interest. Many of these, 225, are in the state of Alaska, while the remaining Tribes (240) are spread throughout the Environmental Protection Agency (EPA) Regions 8, 9, the lower three states of 10 and New Mexico in Region 6. There are at least 61 Tribal air quality programs in the WRAP area, excluding those in Alaska. Due to the large numbers WRAP considers all federally recognized Tribes as members has but does request a letter requesting to become an active member. WRAP currently has 24 active member Tribes.

|  |  |  |
| --- | --- | --- |
| EPA Region | Number of Tribes | Number Tribes with Air Quality Programs1 |
| 6 New Mexico | 25 | 2 |
| 8 | 26 | 14 |
| 9 | 146 | 30 |
| 10 | 42 | 15 |
| 10 Alaska | 225 |
| 1 Based on the number of federally recognized Tribes by BIA and 2017 NTAA State of Tribal Air Quality Report. Highest number of Tribes monitoring or conducting Emissions Inventories |

Each Tribal air quality program encompasses unique needs and requires specific emphasis to meet their goals. There are however, certain common themes that weave them together including:

1. Staff (capacity) – many programs have one or two people to address the complexities of air quality. Some Tribes experience turnover in positions that tend to keep them at a lower level of performance compared to long-term stable programs.
2. Funding – Most tribal air programs are funded by EPA Clean Air Act (CAA) 103, 105, Direct Implementation Tribal Cooperative Agreements (DITCA), or Indian General Assistance Grant (IGAP) grant programs. IGAP and 103 grants are used to build capacity while DITCA and 105 grants are awarded to programs that have built their capacity and capability to operate long-term.
3. Training (capability) – New personnel to Tribal air programs may not always possess the basic knowledge or experience needed to manage the program. Opportunities to expand skills are available to Tribal professional, from several sources specific to Tribes and are imperative to building capacity and capability.

By virtue of numbers and geographic spread a large amount of variability exists in the needs and goals of Trial air programs. To capture how WRAP can help meet these needs the Tribal Data Work Group (TDWG) will continue data gathering on the size, complexity, and scope of tribal air needs in the WRAP states. TDWG will continue the effort tot to provide services and help solve Tribal needs.

**Duties and WRAP Staff Support**

In consultation with the Chair or Co-Chairs from the TDWG, the Technical Steering Committee (TSC) will review and seek Board approval of a written workplan to address and include all the elements for the Work Group as described in Section I of the Annual WRAP Workplan. Based on these elements, the TDWG is then charged with creating detailed workplan inputs to the WRAP annual workplan for achieving these objectives. The TDWG workplan will include a schedule for progress reports to the TSC (quarterly and annual summary) and a schedule for project completion. The TDWG will work with WRAP staff to have progress reports posted to the WRAP website. The TDWG and other Work Groups are responsible for translating technical materials into a form understandable by the TSC, Board, and general public. The TDWG has the additional responsibility for ensuring the best information and data are available for air quality planning across the region, with WRAP Staff support.

The TDWGwill have conference calls on alternating months to manage activities and provide oversight to WRAP projects. The TDWG will provide inputs to the TSC for an annual WRAP workplan and budget for Board approval, covering technical projects and Work Groups. The TDWG may have meetings identified in the annual workplan. The TDWG Chair or Co-Chairs will plan and direct the calls and meetings, and with assistance from WRAP Staff, take the lead in communications and other necessary TSC and Board interaction.

WRAP Staff will provide support for TDWG calls and meetings. WRAP Staff will assist with arranging and documenting TDWG calls and meetings, prepare TSC workplan inputs and budgets for review and action, assist with status reports on the TDWG’s activities, and provide status reports on the deliverables, budgets, and timelines for the WRAP’s technical projects.

### Processes

The TDWG is to conduct their business on a consensus basis. Consensus has the following parameters:

* Consensus is agreement.
* Consensus is selection of an option that everyone can live with.
* Consensus may not result in the selection of anyone's first choice, but everyone is willing to support the choice.
* Consensus is not a majority vote.

When the TDWG cannot reach a consensus on an issue it will be referred to the TSC. If the TSC cannot reach a consensus on the issue it will be referred to the WRAP board for resolution.

### Coordination

Through the TSC, the TDWG will coordinate with the following work groups and committees as needed to ensure activities conducted in WRAP projects, and under the auspices of the TDWG provide needed support:

1. Regional Technical Operations Work Group (RTOWG);
2. Fire and Smoke Work Group (FSWG);
3. Oil and Gas Work Group (OGWG);
4. Regional Haze Planning Work Group (RHPWG);
5. WESTAR Planning Committee;
6. WESTAR Technical Committee; and
7. Other groups as designated by the Board in the annual Workplan process.

The TDWG will participate in a Google Documents site coordinated by WRAP staff, which enables collaboration on projects within the group and with other workgroups. Access will be provided to all members of the Technical Steering Committee, TDWG, and co-chairs of other workgroup. The TDWG believes this will foster great communications and enhance collaboration.

The TDWG may decide to further coordinate information gathering efforts with other Tribal organizations such as the National Tribal Air Association (NTAA) and the Tribal Air Monitoring Support Center (TAMS) Steering Committee. These entities actively support Tribal air programs and gather information that would benefit the work of the TDWG. WRAP also engages with the Clean Air Act Advisory Committee, and the Northwest Air Quality Communicators Group

National Tribal Air Association –<http://www7.nau.edu/itep/main/ntaa/>

Tribal Air Monitoring Support Center -<http://www7.nau.edu/itep/main/tams/>

### TDWG Co-chairs

Emma Ruppell, Bishop Paiute Tribe

Kris Ray, Confederated Tribes of the Colville Reservation

**Members**

Participation in the TDWG will be dynamic and evolving depending on projects being addressed and interests of the work group’s members. Therefore, a members list will be provided as attachment 1and will be updated by the co-chairs when needed. Although a Tribal focus exists, the TDWG encourages other interested parties to join the group.

**Progress on 2017 Workplan Activities**

The table below lists progress on 2017 TDWG WRAP Workplan deliverables. Many of these activities will be carried forward in the 2018-2019 WRAP Workplan.

| **Tribal Data Work Group****Progress Update for 2017 Workplan Activities** |
| --- |
| **2017 Deliverable** | **Source** | **Funding** | **Time line** | **2017 Progress** |
| **Administrative Projects** |
| Develop SharePoint site to house TDWG documents and projects. | WRAP Staff | WRAP Budget | March 1, 2017 | Shared documents on Google Docs; determined SharePoint not needed at this timeDocument sharing will be carried forward in the 2018-2019 WRAP Workplan |
| Help Tribes understand the benefits of using WRAP and WESTAR products and services | TDWG, WRAP Staff, other workgroups | In-Kind | July 1, 2017 | IWDW Webinar July 20, 2017Ongoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan |
| Change Section F title to – Support Development of Tribal Air Quality Capacity and Capability and rewrite narrative | TDWG and WRAP Staff | In-Kind | Completed | Accomplished |
| Solicit Tribal membership in WRAP and participation in the TDWG | TDWG and WRAP Staff | In-Kind | September 1, 2017 | Accomplished; Two additional Tribes became active WRAP membersOngoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan |
| Schedule TDWG meeting and provide activity reports | TDWG and WRAP Staff | In-Kind | September 1, 2017 | Accomplished; Monthly TDWG calls with activity reportsOngoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan |
| Co-Chairs attendance at Technical Steering Committee In-person Meeting, 2 meeting per year | TDWG Co-Chairs | $4,800  | December 1, 2017 | Accomplished for 2017Ongoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan |
| **Information Gathering Project** |
| Assessment of the status of Tribal air quality monitoring, AQS, and emissions inventories | TDWG, WRAP Staff and IWDW  | In-Kind | September 1, 2017 | Developed AQS, EI survey and distributed in November 2017Ongoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan |
| **WRAP General Projects** |
| Determine the types of Tribal data needs for WRAP projects and deliverables | TDWG, WRAP Staff, RTOWG RHPWG, OGWG, and FSWG | In-Kind | September 1, 2017 | In progress Ongoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan |
| Provide educational opportunities for WRAP member Tribes and Tribes within the area of interest. | TDWG and WRAP Staff | In-Kind and supplemental funds  | December 1, 2017 | IWDW Webinar July 20, 2017; DART Webinar December 19, 2017Ongoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan |

**Action Items for 2018 - 19 Workplan**

The 2018-19 Workplan tasks were selected and approved by consensus of the TDWG. Details for each task are included in the table below and will be developed further and recorded as the tasks are executed. Tasks may be revised if and where deliverables are overlapping. The TDWG expects to partner with others such as ITEP and EPA Regional staff to complete some of the informational/assessment tasks.

**Multi-year Action Items**

The majority of this work plan spans many years of effort and potential effort by the TDWG to provide needed information and services to the WRAP membership. Some of the identified tasks are considered ongoing, but have been incorporated into the 2018-19 Workplan tasks.

**Tasks to Promote Access to Tribal Air Quality Data**

Tasks identified here can be supported by utilizing other organizations information gathering efforts, and possibly also augment those efforts. Data gained via WRAP/TDWG managed projects will be collected for the WRAP area but can be sorted by EPA region. The TAMS Steering Committee is updating the TAMS Technical Needs Assessment, an effort during which they will be gathering information concerning air quality monitoring methods utilized by Tribes. That project includes estimates of tribal air program monitoring activities based on identified/requested assistance. The NTAA compiles information every year into a State of Tribal Air Report (STAR). Information for Emissions inventories and Air Quality System reporting may be gleaned from that effort.

| **Tribal Data Work Group****Action Items for 2018-2019 WRAP Workplan** |
| --- |
| **Task** | **Deliverable** | **Source** | **Funding** | **Timeline** |
| Administration | -- Development of budgets for projects including Travel budget proposal for WRAP twice yearly meeting-- Summary budget for TDWG activities | TDWG | In-Kind | Jan 31, 2018 |
| Write/Revise 2018 TDWG work plan | TSC, TDWG | In-Kind | Jan 31, 2018, 2019(Annual revisions) |
| Schedule TDWG monthly meeting conference calls; record minutes. | TDWG, WRAP Staff, other Work Groups | In-Kind | Monthly |
| Solicit Tribal membership in WRAP and participation in the TDWG | Send out once each year information about WRAP and the benefits of Tribal membership to list of WRAP area Tribes. | TDWG | In-Kind | February 1, 2019 |
| Membership in TDWG letter requesting participation by WRAP Tribes – ongoing yearly request | TDWG | In-Kind | February 1 2019 |
| WRAP for Tribes Fact Sheet | TDWG, Contractor | WRAP Budget | December 2018 |
| Help Tribes understand the benefits of using WRAP and WESTAR products and services. | Intermountain West Data Warehouse Webinar | TDWG, WRAP Staff, IWDW, other Work Groups | In-Kind | June, 2019 |
| WRAP Tools Webinar | TDWG, WRAP Staff | In-Kind | August, 2019 |
| Information Booth & Presentations at Annual National Tribal Air Forum Conference | TDWG, WRAP Staff | In-Kind | May, 2019 |
| Develop strategy for WRAP member/area Tribes to overcome barriers identified & submit monitoring data to AQS: -- Identify which WRAP area Tribes are submitting data to AQS-- Identify air pollutants, equipment used-- Determine goal of monitoring-- Identify unmet monitoring needs | Summary Assessment: Tribal Air Quality Monitoring & AQS Submittal Status | TDWG, WRAP Staff and IWDW, Contractor | WRAP Budget, In-Kind | February 1, 2019 |
| Develop strategy for WRAP member/area Tribes to overcome barriers & submit data to NEI: -- Identify which WRAP area Tribes are submitting data to NEI | -- Summary Assessment: Tribal Emissions Inventories Status -- Results of questionnaire | TDWG, WRAP Staff and IWDW, Contractor | WRAP Budget, In-Kind | February 1, 2019 |
| -- Provide Tribal data to process 2014 NEI and refinements for base year modeling-- Provide Tribal data to develop and refine 2028 modeling emission inventories | TDWG, WRAP Staff | WRAP Budget, In-Kind | January-August 2019 |
| Support Regional Haze and other WRAP projects by identifying Tribal data to support those projects’ deliverables:-- See list (below table) of TDWG Workplan activities associated with Critical Milestones for Regional Haze Planning Technical Support  | Promote RH consultation and assist in developing framework with WRAP member agencies and Federal agencies | TDWG, WRAP Staff and RHPWG | WRAP Budget, In-Kind and contractor |  OngoingFramework June-December 2018 |
| Coordinate with other WRAP Work Groups to assist in facilitating assessments and technical analyses that support TIP development and tribal air program efforts and activities among the spectrum of air quality planning issues across the WRAP. | TDWG, WRAP Staff and RHPWG | WRAP Budget, In-Kind and contractor | OngoingSee Detailed Gantt Chart for Activity Dates |
| Identify SIP planning target dates and help tribes understand how to participate and review | TDWG, WRAP Staff and RHPWG | WRAP Budget, In-Kind and contractor | Ongoing SIP Planning Dates  |
| Co-Chairs attendance at Technical Steering Committee In-person Meeting, 2 meeting per year | TDWG Co-Chairs | $4,800 | April and September 2018, 2019 |
| -- Identify WRAP member tribes dealing with oil and gas production emissions & their data sources-- Conduct WRAP member tribe oil and gas industry emission inventory | TDWG Co-Chair; OGWG, contractor, IWDW | WRAP Budget, In-Kind | April 2018, December 2018 |
| Determine & locate the types of Tribal data WRAP is interested in for modeling; will coordinate with the RTOWG | TDWG Co-Chairs | In-Kind | December 2018 |
| Quarterly reports to TSC with updates & results of Assessments. | TDWG Co-Chairs | In-Kind | Quarterly |
| Provide educational opportunities for WRAP member Tribes and Tribes within the area of interest. These opportunities could be in the form of webinars, classroom, or phone conference discussions. The TDWG will identify subjects, method of presentation and venues along with implementation costs during this workplan year. | 2 Webinars e.g. AirNow, Regional Haze for Tribes | TDWG and WRAP Staff | In-Kind and supplemental funds | May 2019 |
| -- Provide information on the status, benefits to Tribes for having an emission inventory-- Include identifying emission factors for the oil and gas industry and make available | TDWG, OGWG | In-Kind | May 2019 |
| Provide information on the status, benefits to Tribes for submitting AQS data | TDWG | In-Kind | May 2019 |

**2018-2019 TDWG Workplan Action Items listed by WRAP Workplan Gantt Chart Categories**

TDWG 2018-2019 Workplan activities from the above table are categorized below and ranked as listed in the 2018-2019 Workplan Detailed Gantt Chart for

.

* TDWG Management - periodic calls and meetings, reports on deliverables completed
* Help Tribes understand the benefits of using WRAP and WESTAR products and services
* Solicit Tribal membership in WRAP and participation in the TDWG
* Help Tribes understand air quality monitoring data and use of the Air Quality System
* Help Tribes understand the emissions inventory process and National Emissions Inventory capability and use
* Ensure availability of monitoring/ emissions data from Tribes
* Coordinate with other WRAP Work Groups to facilitate support of TIP development and tribal air programs.
* Provide educational opportunities for WRAP member Tribes.

Critical Milestones for Regional Haze Planning supported by the TDWG Workplan activities,are listed below:

Task 1.2 Analyze monitoring data (trends, ranges, linkages)

Task 2.1 Process 2014 NEI and refinements for base year modeling

Task 2.3 Develop and refine 2028 modeling emission inventories

Task 3.6 Conduct/evaluate AQ modeling for base year and 2028 inventories

Task 4.2 Sensitivity/control strategy evaluation modeling for 2028

Task 4.3 Evaluate base year and 2028 source apportionment modeling results

Task 4.4 Evaluate change in visibility from base year to 2028

Task 7.5 Provide TSS training

Task 8.1 Identify SIP planning target dates

Task 8.2 Establish consultation framework

Task 8.3 Consultation with WRAP member agencies

*

Appendix G

**Detailed Gantt Charts of 2018-2019 Workplan Critical Milestones**

* Critical Milestones for Regional Haze Planning Technical Support
* Critical Milestones for Associated Regional Analysis Technical Support in 2018-2019





1. WRAP Strategic Plan, March 9, 2015, [**link**](https://www.wrapair2.org/pdf/WRAP%20Strategic%20Plan%20final%20March_2015.pdf) [↑](#footnote-ref-1)
2. WESTAR and WRAP Joint Operating Agreement, August 1, 2017, [**link**](http://www.westar.org/Policy%20Manual/WESTAR-WRAP%20Joint%20Operating%20Agreement%20Final_080117.pdf) [↑](#footnote-ref-2)
3. Ibid. [↑](#footnote-ref-3)
4. WRAP Charter, approved July 2014, [**link**](https://www.wrapair2.org/pdf/WRAP%20Charter%20approved%20by%20the%20WRAP%20Membership%20July%202014.pdf) [↑](#footnote-ref-4)
5. WRAP Strategic Plan, March 9, 2015, [**link**](https://www.wrapair2.org/pdf/WRAP%20Strategic%20Plan%20final%20March_2015.pdf) [↑](#footnote-ref-5)
6. WESTAR/WRAP Regional Haze Principles of Engagement, April 4, 2018, [**link**](https://www.wrapair2.org/calendar/attachments/18407/15148/RH%20principles%20of%20engagement_WRAP_Board_draftJan3_2018.docx) [↑](#footnote-ref-6)
7. Ibid. [↑](#footnote-ref-7)
8. WESTAR and WRAP Joint Operating Agreement, August 1, 2017, [**link**](http://www.westar.org/Policy%20Manual/WESTAR-WRAP%20Joint%20Operating%20Agreement%20Final_080117.pdf) [↑](#footnote-ref-8)
9. Ibid. [↑](#footnote-ref-9)
10. WRAP 2016 Annual Workplan, May 9, 2016, p.3, [link](https://www.wrapair2.org/pdf/Annual%20WRAP%20Workplan%20approved%20by%20WRAP%20Board%20May9_2016.pdf) [↑](#footnote-ref-10)
11. WRAP Charter, approved July 2014, [**link**](https://www.wrapair2.org/pdf/WRAP%20Charter%20approved%20by%20the%20WRAP%20Membership%20July%202014.pdf) [↑](#footnote-ref-11)
12. Technical Steering Committee Description, October 13, 2015, [**link**](https://www.wrapair2.org/pdf/WRAP%20Technical%20Steering%20Committee%20Description%20Oct%2013_2015%20approvedby%20Board.pdf) [↑](#footnote-ref-12)
13. WRAP Strategic Plan, March 9, 2015, [**link**](https://www.wrapair2.org/pdf/WRAP%20Strategic%20Plan%20final%20March_2015.pdf) [↑](#footnote-ref-13)
14. Ibid. [↑](#footnote-ref-14)
15. This document will be updated annually and approved by the WRAP Board as part of the WRAP Workplan. [↑](#footnote-ref-15)
16. WRAP 2016 Annual Workplan, May 9, 2016, [link](https://www.wrapair2.org/pdf/Annual%20WRAP%20Workplan%20approved%20by%20WRAP%20Board%20May9_2016.pdf) [↑](#footnote-ref-16)
17. WESTAR 2021 RH SIP Update [↑](#footnote-ref-20)
18. US EPA, January 10, 2017, *Protection of Visibility: Amendments to Requirements for State Plans, Final Rule*, 82 FR 3078-3128, available at: <https://www.federalregister.gov/d/2017-00268> [↑](#footnote-ref-21)
19. US EPA, July 2016, *Draft Guidance on Progress Tracking Metrics, Long-term Strategies, Reasonable Progress Goals and Other Requirements for Regional Haze State Implementation Plans for the Second Implementation Period* [↑](#footnote-ref-22)
20. US EPA, September 11, 2018, *Regional Haze Reform Roadmap*, Andrew R. Wheeler Memorandum [↑](#footnote-ref-23)
21. US EPA, December 20, 2018, *Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program*, Richard A. Wayland Memorandum [↑](#footnote-ref-24)
22. US EPA, Draft Guidance on Progress Tracking Metrics, Long-term Strategies, Reasonable Progress Goals and Other Requirements for Regional Haze State Implementation Plans for the Second Implementation Period, July 2016 [↑](#footnote-ref-25)
23. US EPA, December 20, 2018, *Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program*, Richard A. Wayland Memorandum [↑](#footnote-ref-26)
24. US EPA, December 20, 2018, *Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program*, Richard A. Wayland Memorandum [↑](#footnote-ref-27)
25. US EPA, Draft Guidance on Progress Tracking Metrics, Long-term Strategies, Reasonable Progress Goals and Other Requirements for Regional Haze State Implementation Plans for the Second Implementation Period, July 2016 [↑](#footnote-ref-28)
26. US EPA, *Draft Guidance on Progress Tracking Metrics, Long-term Strategies, Reasonable Progress Goals and Other Requirements for Regional Haze State Implementation Plans for the Second Implementation Period*, July 2016 [↑](#footnote-ref-29)