



2018-2019 WRAP Workplan

adopted by the WRAP Board on April 4, 2018

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I. 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 West¹. 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 benefit². 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 Agreement³ finalized August 1, 2017.

The WRAP Charter⁴ 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 stakeholders⁵. 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.

On April 4, 2018, the WRAP Board completed their final review and 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 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 involved⁷. 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

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

¹ WRAP Strategic Plan, March 9, 2015, [link](#)

² WESTAR and WRAP Joint Operating Agreement, August 1, 2017, [link](#)

³ Ibid.

⁴ WRAP Charter, approved July 2014, [link](#)

⁵ WRAP Strategic Plan, March 9, 2015, [link](#)

⁶ WESTAR/WRAP Regional Haze Principles of Engagement, adopted by WRAP Board April 4, 2018, [link](#)

⁷ Ibid.

⁸ WESTAR and WRAP Joint Operating Agreement, August 1, 2017, [link](#)

WESTAR provides a financial report detailing the status of grants, contracts and expenditures of both WESTAR and WRAP⁹.

II. 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](#) 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 2016¹⁰:

- 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 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, will revisit 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

⁹ Ibid.

¹⁰ WRAP 2016 Annual Workplan, May 9, 2016, p.3, [link](#)

for the Board, TSC, Work Groups, and WRAP member agencies. Changes to the Regional Haze program and/or guidance by EPA would also necessitate review of the Workplan.

A. 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)

B. 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)

C. 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)

D. 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)

E. 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)

F. 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)

III. Milestones and Budget 2018-2019

A. 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 is 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)

Key Check-Ins and Critical Milestones for Regional Haze Planning Technical Support (by Task)															
Task	2018				2019				2020				2021		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Task 1. Monitoring Data Analysis															
Reach consensus -- tracking metric			■												
Reach consensus -- Natural Conditions estimates				■											
Reach consensus -- adjusting the glideslope for natural fire and int'l emissions				■											
Task 2. Emissions Inventory															
Enhanced base year emission inventory ready for modeling		■													
Reach consensus -- inventory projection methods for fire, oil and gas, others			■												
Enhanced planning emission inventory (on-the-way/on-the-books) ready for modeling				■											
Final 2028 control measures emission inventory ready for modeling									■						
Task 3. Air Quality Modeling (Visibility and Source Appointment Modeling)															
Approve modeling plans and protocol		■													
Base year modeling and Model Performance Evaluation complete			■												
2028 planning modeling complete (on-the-way/on-the-books controls)				■											
Final 2028 control measures modeling complete									■						
Task 4. Analyzing Future Year Modeling Results															
Reach consensus -- resolution of tracking metric and model output			■												
Reach consensus -- scenarios for sensitivity testing/modeling		■													
Evaluate change in visibility -- Base year to 2028 (Reasonable Progress Goals)									■						
Task 5. Control Measures Analysis (Reasonable Progress Analysis)															
Reach consensus -- development and application of screening tools			■												
Reach consensus -- application of Source Appointment modeling results				■											
Reach consensus -- use of visibility as a "fifth" factor and how to incorporate				■											
States finish control analysis									■						
Task 6. Embedded Progress Report (5-Year Reports)															
5-year Progress Report due															■
Task 7. Technical Support System TSS v2															
TSS v2 available for training/use		■													
Task 8. State Planning and Adoption Process															
2018 RH SIP due															■

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

On-going Activities and Key Check-Ins for Associated Regional Analysis Technical Support (by Work Group)															
Task	2018				2019				2020				2021		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Technical Steering Committee															
Oversee finalization of 2018-2019 WRAP Workplan and budget for Board approval		■													
Provide monthly oversight and direction to Work Groups and coordinate activities	----- on-going -----														
Conduct periodic assessment of 2018-2019 Workplan progress and report out to Board		■		■		■		■		■		■		■	
Conduct mid-course review of 2018-2019 Workplan and revise as necessary					■										
Regional Haze Planning Work Group															
Provide oversight and direction to Subcommittees and coordinate activities	----- on-going -----														
Identify and provide training needed for SIP preparation	----- on-going -----														
Schedule and arrange regional haze planning meetings as needed			■		■		■		■		■		■		■
Regional Technical Operations Work Group															
Coordinate with other Work Groups to identify needed air quality modeling	----- on-going -----														
Leverage opportunities and WRAP work through coordination and collaboration	----- on-going -----														
Fire and Smoke Work Group															
WRAP Tools/Fire Emissions Tracking System Update and Continued Operation	----- on-going -----														
Identify key data to collect in support of exceptional event demonstrations	----- on-going -----														
Coordinate wildfire response and smoke management	----- on-going -----														
Oil and Gas Work Group															
Member agency collaboration on sub-regional oil and gas management	----- on-going -----														
Regional and local air quality planning needs	----- on-going -----														
Tribal Data Work Group															
Solicit Tribal membership and participation in WRAP	----- on-going -----														
Assist Tribes with WRAP/WESTAR technical tools and data analyses	----- on-going -----														
Develop strategies to facilitate submittal of Tribal monitoring and emissions data					■										

B. 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	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

IV. 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 Charter¹¹ 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 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, with the first such terms expiring at the conclusion of the Fall 2017 WRAP membership meeting.

¹¹ WRAP Charter, approved July 2014, [link](#)

¹² Technical Steering Committee Description, October 13, 2015, [link](#)

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	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.	Accomplished: -TSC Co-Chairs and WRAP Staff participated in WRAP Board calls and Spring and Fall WRAP/WESTAR Business	Ongoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan, as appropriate

¹³ WRAP Strategic Plan, March 9, 2015, [link](#)

2017 TSC Task	2017 Progress	Outstanding Tasks
<p>-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.</p> <p>-Provide coordination for the Work Groups and staff, and their projects and tasks.</p> <p>-Ensure periodic interaction with Work Group Co-Chairs and Members and with the contractors operating any projects</p>	<p>Meetings</p> <p>-Initiated and held monthly TSC calls</p> <p>-Participated in WG calls</p> <p>-Participated in WRAP Meetings of Administrative Subcommittee on Funding</p> <p>-Status and Budget Reports at WRAP Board Meetings and Spring and Fall WRAP/WESTAR Business Meetings</p> <p>-Other calls scheduled as needed</p>	
<p>Workplan and Work Group oversight and direction</p> <ul style="list-style-type: none"> ● 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 	<p>Accomplished:</p> <p>-Work Group membership approved by Board</p> <p>- Participated in Work Group calls to facilitate workplan development</p> <p>-Monthly progress reported at scheduled TSC Member / Work Group Co-Chair calls</p> <p>-Organized and held spring and fall WRAP Technical Planning meetings April 12 (virtual) and Oct 26-27 (in-person), 2017</p>	<p>Ongoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan, as appropriate</p>
<p>-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.</p> <p>-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.</p>	<p>Accomplished:</p> <p>-Participate in WESTAR Technical and Planning Committees call</p> <p>-Hosted 2 technical planning meetings</p> <p>-Attended relevant technical conferences</p> <p>-Organized and held Western and National Regional Haze Planning Workshop Dec 5-7, 2017</p>	<p>Ongoing: These tasks will be carried forward in the 2018-2019 WRAP Workplan, as appropriate</p>
<p>-Develop the 2018 Annual WRAP Workplan and review the associated annual Work Group Workplans, budgets, projects and deliverables</p> <p>-Post WRAP Board-approved Annual WRAP Workplan and status reports of the WRAP Work Groups and WRAP projects to the WRAP website.</p>	<p>Accomplished:</p> <p>-Initial Development of 2018-2019 Draft WRAP Workplan: October-December, 2017</p> <p>-Workplan and status reports posted on WRAP website</p>	<p>Ongoing: These tasks will be carried forward in developing the 2018-2019 WRAP Workplan, as appropriate</p>

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	Target Board Approval 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	Target Date March 16	In-kind
Complete Final Edits to 2018-2019 Workplan and Submit Workplan to Board for Approval	2018-2019 Final Draft WRAP Workplan	Target Date March 21	In-kind
Conduct Mid-Course Reviews, 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 Needed Board Approval of Addendums	Mid-Course Reviews Every Six Months	In-kind
Continue Implementation of March 2015 WRAP Strategic Plan and Vision Statement 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 Staff Timely 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 Needed Timely Completion of Workplan Tasks	On-going As Needed	In-Kind

¹⁴ Ibid.

2018-2019 TSC Tasks	Deliverables	Schedule	Funding
<p>Conduct Periodic Interaction with Work Group Co-Chairs and Membership, and Contractors Performing Support Tasks</p>	<p>TSC Co-Chairs and WRAP Staff Participation in Work Group and Contractor Calls and Meetings</p> <p>Work Group Co-Chairs Participation and Report-outs at TSC Calls and Meetings.</p> <p>TSC, Work Group Co-Chairs, and WRAP Staff Participation in Technical Planning Meetings</p>	<p>On-going Monthly and as Needed</p> <p>Spring and Fall Technical Planning Meetings</p>	<p>In-Kind</p>
<p>Work with Work Group Co-Chairs to update Work Group Memberships as Needed</p>	<p>TSC and Work Group Co-Chairs and WRAP Staff Ensure Work Group Memberships Are Filled and Up to Date</p> <p>Board Approves Work Group Co-Chairs, TSC Approves Work Group Membership</p>	<p>On-going Annually and As Needed</p>	<p>In-Kind</p>
<p>Develop draft 2020 Workplan and Review Work Group draft 2020 Workplans, Budgets, Projects, and Deliverables</p>	<p>Draft 2020 WRAP Workplan</p>	<p>October-December 2019</p>	<p>In-Kind</p>
<p>Design and Bring the Regional Technical Center (RTC) On-Line</p>	<p>RTC is operational</p>	<p>December 2018</p>	<p>In-Kind</p>
<p>Coordinate with WESTAR Committees and Work Groups to Ensure WRAP Workplan Provides Needed/Requested Support</p>	<p>TSC Co-Chairs and WRAP Staff Participation in WESTAR Committee and Work Group Calls and Meetings</p>	<p>On-going Monthly and As Needed</p>	<p>In-Kind</p>
<p>Leverage Work of Other Partner Organizations, Network with Other Organizations with Common Interests and Needs</p>	<p>TSC, Work Group Co-Chairs, and WRAP Staff Conduct Outreach, Host and Attend Technical Conferences and Produce Topical White Papers</p>	<p>On-going, As Needed</p>	<p>In-Kind</p>
<p>Conduct Comprehensive Budget Tracking for Operations and Technical Analysis Activities for the WRAP Board, Managing</p>	<p>TSC Co-Chairs and WRAP Staff Participation in WESTAR Committee and Work Group Calls and Meetings, TSC Calls</p>	<p>On-going Quarterly and As Needed</p>	<p>In-Kind</p>

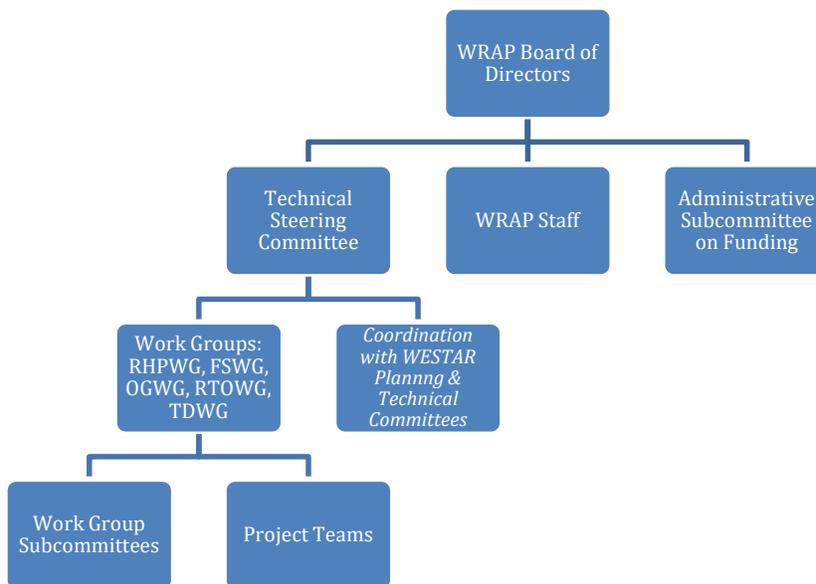
2018-2019 TSC Tasks	Deliverables	Schedule	Funding
Expenditures and Anticipating Funding Needs	and Meetings, WRAP Work Group Calls and Meetings, Calls and Meetings of WRAP Administrative Subcommittee on Funding		
Work with TSC to update Memberships as Needed	TSC Co-Chairs and WRAP Staff Ensure TSC Memberships Are Filled and Up to Date Board 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 Structure¹⁵

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](#) 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](#), 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;

¹⁵ This document will be updated annually and approved by the WRAP Board as part of the WRAP Workplan.

- 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](#) (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 Template¹⁶). 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 six Subcommittees: Consultation and Coordination, Shared Database Construction, Emissions Inventories, Monitoring Analysis and Glide Slope, Control Measures, and Modeling Protocols.

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](#).

¹⁶ WRAP 2016 Annual Workplan, May 9, 2016, [link](#)

Appendix B

Regional Haze Planning Work Group 2018-2019 Workplan

(Reviewed by RHPWG in March 2018)

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 RH SIP submissions to meet the July 2021 deadline for the second planning period of the federal Regional Haze Rule (RHR). Regional Haze SIP (RH SIP) preparation is a multi-year effort and must incorporate time for the required consultation and public review process. Some member states require additional lead-time for legislative approval of SIPs. In 2017¹⁷, the RHPWG developed a prioritized schedule of tasks, beginning in 2017 and continuing through the first quarter of 2020 based on the RHR¹⁸ requirements and recent draft EPA guidance¹⁹. 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.

Despite the absence of final SIP implementation guidance, 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 for RH SIP preparation. The RHPWG, in conjunction with the TSC and other Work Group, will conduct a mid-course review based on the announced 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.

The RHPWG will proceed with identifying and prioritizing SIP preparation tasks and deliverables, and identifying possible resources. 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, and fluctuating emissions and evolving smoke management programs, such as the full range of oil and gas activities; electrical/industrial power generation; and international 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.

¹⁷ WESTAR 2021 RH SIP Update

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>

¹⁹ 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

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 as states set their reasonable progress goals 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 an US 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. 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

Task	Progress	Outstanding Work
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	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.

Task	Progress	Outstanding Work
SIP implementation		
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.

Task	Progress	Outstanding Work
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	In progress	This is part of the task to Evaluate a Protocol for Monitoring Data Analysis. Should be coordinated

Task	Progress	Outstanding Work
“Anthropogenic Fire” days.		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		

Task	Progress	Outstanding Work
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

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 (quarterly and annual summary) and a schedule for project completion. The RHPWG will work with WRAP staff to have progress reports 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.

The RHPWG will have conference calls on alternating months to manage activities and provide oversight to WRAP projects. The RHPWG will provide inputs to the TSC for an annual WRAP workplan and budget for Board approval, covering technical projects and Work Group coordination. The RHPWG may have meetings identified in the annual workplan. The RHPWG 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 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.

Coordination

The RHPWG will coordinate with the following work groups and 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);
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 as designated by the Board in the annual Workplan process.

RHPWG co-chairs prepare brief agendas for conference calls. For efficiency sake, notes of calls and meetings will be limited to action items and reminders of who takes responsibility for various tasks.

The RHPWG members have also committed to work “in-kind” in the following subcommittees:

1. Consultation and Coordination
2. Shared Database Construction
3. Emissions Inventories
4. Monitoring Analysis and Glide Slope
5. Control Measures
6. Modeling Protocols.

The subcommittee members will develop needed protocols for all states to follow in preparing RH SIP elements and guide contracted services and evaluate contract deliverables.

RHPWG Co-Chairs and Work Group Members

Tina Suarez-Murias, California Air Resources Board
Jay Baker, Utah Department of Environmental Quality

Initial 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. The membership was increased in 2018 to assure that there is at least one key contact from each state, preferably someone who will be involved in preparing each state’s RHSIP. State members serve for one year with the option of renewing for following years. 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.

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 with its subcommittees and other Work Groups or if the RHPWG has lead responsibility 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; Monitor Data Analysis, Emission Inventory Development, Air Quality Modeling, Analyze

Future Year Modeling Results, Control Measures Analysis, Embedded Progress Reports, Technical Support System TSS v2, State Planning and Adoption. Additional text following the table provides overviews of these tasks.

<u>Task</u>	<u>Deliverable</u>	<u>Tracking and Coordination (TC) and/or Lead Responsibility (LR)</u>	<u>Assigned To / Coordination</u>	<u>Comments</u>	<u>Schedule</u>
Task 1. Monitor Data Analysis Feb-May 2018					
1.1 Evaluate EPA tracking metric and alternatives	-Most impaired dataset for all Class I Areas	TC, contractor support	-Monitoring SC -Coord. w/ RTOWG and FSWG	-Task 1 dataset will populate TSS -Evaluate 3-4 metric alternatives -Evaluate E3 threshold -Calculate new baselines based on new most-impaired dataset -Critical to reach consensus regarding most-impaired tracking metric	Feb-March 2018
1.2 Analyze monitor data (trends, ranges, and linkages)	-Recommendation for western tracking metric and revised NC estimates for 2064 endpoint based on monitor and/or model data -Reconstructed glideslope from new baseline to 2064 endpoint adjusted for wildland prescribed fire and international anthropogenic contributions	LR and TC, contractor support	-Monitoring SC -Coord. w/ RTOWG, FSWG 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	March-May 2018

<u>Task</u>	<u>Deliverable</u>	<u>Tracking and Coordination (TC) and/or Lead Responsibility (LR)</u>	<u>Assigned To / Coordination</u>	<u>Comments</u>	<u>Schedule</u>
	<ul style="list-style-type: none"> -Trend analysis for changes in each species emission -Method(s) for Hawaii, California, other states with unique uncontrollable sources to account, for example Volcanic and anthropogenic sulfate contributions -Method to assist coastal states with identifying international contributions to monitored impairment 			depth to SIP analysis of trends by states	
1.3 Identify dominant visibility-impairing pollutants for each Class I area	-Report summarizing results of Task 1 with recommended most-impaired metric, New Glide Path, and analysis of most-impairing species at each Class 1 Area	LR	-Monitoring SC	-States can identify most visibility-impairing pollutant at their class 1 areas once the data is posted; there is value in seeing the regional summary as a report	May 2018
Task 2. Emission Inventory Development - Feb 2018-Dec 2019					

<u>Task</u>	<u>Deliverable</u>	<u>Tracking and Coordination (TC) and/or Lead Responsibility (LR)</u>	<u>Assigned To / Coordination</u>	<u>Comments</u>	<u>Schedule</u>
2.1 Evaluate, Refine, and Process Base Year Inventory	<ul style="list-style-type: none"> -Refined base year inventory -Gridded Inventory for States to confirm (“ground truth” at borders) 	TC, contractor support	<ul style="list-style-type: none"> -Emission Inventories SC -Coord, w/ OGWG, FSWG, TDWG, and RTOWG 	<ul style="list-style-type: none"> -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 	Feb-May 2018

<u>Task</u>	<u>Deliverable</u>	<u>Tracking and Coordination (TC) and/or Lead Responsibility (LR)</u>	<u>Assigned To / Coordination</u>	<u>Comments</u>	<u>Schedule</u>
2.2 Evaluate use of 2016 EPA modeling platform	-RTOWG-contracted analysis of air quality, met, and emissions data regarding representativeness of 2014, 15, and 16 years for western air quality modeling -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	-Modeling Protocol SC -Coord. w/ Monitor SC, Emissions SC, and RTOWG	-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	-RTOWG contractor-supported report detailing projection methodologies by source category and precursor species incorporating results of sensitivity testing to develop 2028 emission inventory -Refined 2028 control measures inventory incorporating all emissions reductions	LR, TC, contractor support	-Emissions SC -Coord. w/ Control Measures SC, OGWG, FSWG, TDWG, and RTOWG	-Two phases, planning inventory and control measures inventory -Projected 2028 planning inventory suitable for modeling and control measure analysis -Incorporate OTW/OTB reductions and	May 2018-Dec 2019

<u>Task</u>	<u>Deliverable</u>	<u>Tracking and Coordination (TC) and/or Lead Responsibility (LR)</u>	<u>Assigned To / Coordination</u>	<u>Comments</u>	<u>Schedule</u>
	resulting from state's control measures analysis			results of sensitivity testing -Provides starting point for additional control scenarios -Control measures inventory incorporates all 2028 refinements from control measures analysis	
2.4 Develop screening tools	-2014/2016 emissions pivot tables with Q/d capabilities -2014/2016 and 2028 weighted emissions potential plots -Back Trajectory analyses for Alaska	LR, TC, contractor support	-Control Measures SC -Coord. w/ Shared Database SC, Emission Inventories 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-Dec 2018
2.5 Special Inventory or Modeling Needs (see also Item 3.7)	-Wildland Prescribed Burning Emissions Inventory to be used for 2064 endpoint adjustment -International Emissions Inventory (natural & anthropogenic) to be used for 2064 endpoint adjustment -In-state Dust, Volcano, Wildfire, and Biogenic Emissions, seasonal and frequency analysis to be	LR, TC, contractor support	-Emissions Inventory SC -Coord w/ Modeling Protocols SC, 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-Dec 2018

<u>Task</u>	<u>Deliverable</u>	<u>Tracking and Coordination (TC) and/or Lead Responsibility (LR)</u>	<u>Assigned To / Coordination</u>	<u>Comments</u>	<u>Schedule</u>
	used to verify “Natural Conditions”				
2.6 State-Specific Analysis of Emissions Inventory Trends	-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.	TC	-Emissions Inventory SC -Coord w/ states	-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	July 2017-March 2018
Task 3. Air Quality Modeling - Feb 2018-early 2020					
3.1 Prepare modeling plans	-Protocol for Visibility and Source apportionment modeling -Plan for dynamic modeling evaluations and sensitivity testing	TC, RTOWG contractor support	-Modeling Protocol SC -Coord. w/ Emission Inventories SC, Monitoring SC, and RTOWG	-All Task 3 data and products to be posted on TSS -Protocol and Plan should address all Task 3 and 4 tasks	Feb-March 2018

<u>Task</u>	<u>Deliverable</u>	<u>Tracking and Coordination (TC) and/or Lead Responsibility (LR)</u>	<u>Assigned To / Coordination</u>	<u>Comments</u>	<u>Schedule</u>
3.2 Prepare and evaluate Meteorological data	-Model-ready meteorological data set and RTOWG-contracted evaluation report	TC, RTOWG contractor support	-Modeling Protocols SC -Coord. w/ RTOWG	-RTOWG task, just keep RHPWG informed of progress -Consult with Meteorologists at State air agencies	March-April 2018
3.3 Perform dynamic model evaluations	-RTOWG contractor-supported evaluation of various historic modeling platforms and evaluation report	TC, RTOWG contractor support	-Modeling Protocols SC -Coord. w/ Emission Inventories SC, Control Measures SC, and RTOWG, O&G, TD, F&S WGs	-Both RTOWG tasks, just keep RHPWG informed of progress	Feb-July 2018
3.4 Conduct sensitivity testing	-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		-Modeling Protocols SC -Coord. w/ FSWG, OGWG, and RTOWG		April-July 2018
3.5 Evaluate use of 2016 EPA modeling platform	-See Task 2.2	TC, RTOWG contractor support	-Modeling Protocols SC -Coord. w/ Monitoring SC, Emission Inventories SC, and RTOWG	-	June-July 2018

<u>Task</u>	<u>Deliverable</u>	<u>Tracking and Coordination (TC) and/or Lead Responsibility (LR)</u>	<u>Assigned To / Coordination</u>	<u>Comments</u>	<u>Schedule</u>
3.6 Conduct Base Case and Future Year Modeling	-RTOWG contractor-supported report on results of base year visibility and source apportionment modeling and model performance evaluation	TC, RTOWG contractor support	-Modeling Protocols SC -Coord. w/ Shared Database SC and RTOWG	-Base year modeling used to evaluate model performance -Base year modeling results support the identification of source sectors/facilities for control measures analysis	May-Oct 2018
3.7 Special Inventory or Modeling Needs (see also 2.5)	-Prescribed Burning Emissions Inventory to be used for 2064 endpoint adjustment -International Emissions Inventory (natural & anthropogenic) to be used for 2064 endpoint adjustment -In-state Dust, Volcano, Wildfire, and Biogenic Emissions, seasonal and frequency analysis to be used to verify “Natural Conditions”	LR, TC, contractor support	Emissions Inventory SC, Modeling SC, Monitoring and Glide Slope SC	-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-Dec 2018

Task 4. Analyze Future Year Modeling Results - Feb 2018-early 2020					
4.1 Resolve tracking metric and model output issue	-RTOWG contractor-supported report on options and preferred methodology	TC, RTOWG, RTOWG contractor support as needed	-Modeling Protocols SC -Coord. w/ Monitoring SC and RTOWG	-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	-RTOWG contractor-supported report presenting results of sensitivity testing	TC, RTOWG contractor support	-Modeling Protocols SC -Coord. w/ Emission Inventories SC, Control Measures SC, Consult and Coord SC, and RTOWG	-Results will focus development of projected 2028 emission inventory and identify pollutants/source sectors with greatest visibility improvements from controls -Multiple (?) Control Scenario Runs	May-Oct 2018
4.3 Evaluate base year and 2028 source appointment modeling results	-RTOWG contractor-supported report on results of evaluation	TC, RTOWG contractor support	-Modeling Protocols SC -Coord. w/ Control Measures SC, Consult and Coord SC, and RTOWG	-Evaluation of base and future year modeling results inform the selection of pollutants, source sectors, and facilities for control measures analysis	Aug-Dec 2018

4.4 Evaluate change in visibility from base year to 2028	-Reasonable Progress Goals	TC, RTOWG contractor support	-Modeling Protocol SC -Coord. w/ Monitoring SC, , and RTOWG, Data Base Mgmt., and Consult& Coord	-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
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Task 5. Control Measures Analysis - Feb-Dec 2019

5.1 Develop criteria for source identification and 4-factor analysis	-RHPWG in-kind white paper to lay out regionally-consistent analysis protocol, list of sources for analysis, and evaluation criteria -RHPWG in-kind development of BACT, BART, RACT Clearinghouse for key source sectors in multiple states	LR, TC, RTOWG contractor support as needed	-Control Measures SC -Coord. w/ Modeling Protocol SC and RTOWG	-All Task 5 data and work products will be posted on TSS -Clearing house (task 5.1.4 and 5.15) is source of control measure levels for evaluation -Critical to reach consensus regarding criteria to identify sources and methods for control measures analysis - Initial FLM focus on oil and gas activities, mining activities, power plants, cement plants, pulp mills,	Feb-Oct 2018
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				gas plants, and refineries	
5.2 Determine whether to use visibility as “fifth” factor	-RHPWG in-kind white paper above to address as well	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	March - September 2018
5.3 Conduct regional/state source screening	-RTOWG-contractor supported screening analyses -RHPWG in-kind white paper describing results and next steps for states	TC, RTOWG, RTOWG contractor support	-Control Measures SC -Coord. w/ Consult and Coord SC, RTOWG, 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	-Tribes, states, and locals provide revisions to 2028 emission inventory reflecting application of controls	TC, RTOWG, RTOWG contractor support	-Control Measures SC -Coord. w/ Emissions SC and RTOWG	-Timely completion of this task is critical to complete the modeling necessary to meet the early submission dates of some states	Sept 2018-Dec 2019

				-Document controls in each State's RH SIP	
Task 6. Embedded Progress Report - June 2019 - June 2021					
6.1 Assess visibility conditions and changes	-Trend of five-year averages by deciview for Worst Days through 2018 - Trend of five-year averages by deciview for Best Days though 2018 -Compare the 5-year average with 2018 RPG	TC	-Tribes, states, and locals -Delivery on TSS	-Incorporate most up-to-date IMPROVE monitor data -Analysis based on worst-days metric	2019-2021 (depends on State schedule)
6.2 Analyze changes in emissions	-Compare baseline emissions from initial SIP with most recent submitted NEI (2017) -Compare emissions from BART facilities with retrofits implemented by end of 2018 and explain if implementation not accomplished	TC	-Tribes, states, and locals -Delivery on TSS	-States may need to use most recent NEI submitted, whether or not EPA has approved it. Otherwise, states use EPA-approved 2014 NEI.	2019-2021 (depends on State schedule)
6.3 Prepare Progress Report for achieving 2018 RPGs	-Include other standard requirements of Progress Report per rule -Consultation: states and FLMs -Adequacy statement, if still required -Comment on changes, anthro. and natural, that interfered with achieving RPGs	TC	-Tribes, states, and locals -Coord. w/ RTOWG -Delivery on TSS	-Purpose is to explain why RPGs were or were not met. Nothing to do with Most Impaired Days because we are not recalculating nor re-modeling RPGs -May use what we've learned about Most Impaired days in justifications, if data calculated	2019-2021 (depends on State schedule)

	-Optional to include All Days Average Visual Range comparison				
6.4. Optional Regional Report	-Catalog of Inventory changes, Species monitoring trends for Mass and light extinction, and RPGs achievements for all sites across the region (“Megatrends”) -Optional Comparison of Most Impaired Days (2014-2018) 5-year Average with 2018 Impaired Days on new Glide Path	TC, LR for RHPWG with contractor services	-Monitoring SC -Coord. w/ tribes, states, and locals -Delivery on TSS	-Academic exercise, not necessary for rule, and therefore suggest only if left over funds	2019-2021 (depends on State schedule)
Task 7. Technical Support System TSS v2 Jan 2018-early 2020					
7.1 CIRA staff to reach out to RHPWG to review TSS.v1 and .v2	-Framework for TSS v2 incorporating all features identified by RHPWG	LR with CIRA as contractor	-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 with basic Mass & Light Extinction for All, Best, Worst, and Most Impaired Days for States to Use in	March 2018

				SIP preparation analysis	
7.2 Populate TSS with monitor data	-Post annual IMPROVE monitor data on TSS v2 when available	TC, LR with CIRA as contractor	- Shared Database SC -Coord. w/ Monitoring SC	-Worst, Most Impaired, Clearest (Best) by species, mass, extinction, and dv (include Rayleigh for each site -How to update with Most Impaired Data -Timeliness of Posting (using FED as backup)	April – May 2018
7.3 Populate TSS with emission data	-Post annual emissions data and refinements posted to TSS v2 as available	TC, LR with CIRA as contractor	-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 it was 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, 2028 base case, and 2028	April-May 2018

				control measures scenarios	
7.4 Populate TSS with base year modeling results	-Post base year modeling results and refinements on TSS v2 as available	TC, LR with CIRA as contractor	-Shared Database SC -Coord. w/ Modeling SC and RTOWG	-Include Model Performance Evaluation	September 2018
7.5 Provide TSS training (FED as backup)	-Develop and host TSS v2 training (where to find what plus caveats) -Decide on webinar versus in-person training	TC, LR with CIRA as contractor	-Shared Database SC -Coord. w/ all other SCs and Work Groups	-New People need this -Were webinars sufficient? -Baseline, 2064 and Glide path, and URP recalculations and what they mean	March 2018
7.6 Populate TSS with 2028 on-the-books modeling results	-Post 2028 base case modeling results on TSS v2	TC, LR with CIRA as contractor	-Shared Database SC -Coord. w/ Modeling Protocols SC and RTOWG	-States need to basis to explain why they are not “on the Glide Path”	November 2018
7.7 Populate TSS with additional reasonable control scenario modeling results	-Post additional reasonable control scenario modeling results on TSS v2	TC, LR with CIRA as contractor	- 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	As available in 2019 Final RFP in 1Q 2020

				controls added after consultation	
Task 8. State Planning and Adoption Process - Feb 2018-July 2021					
8.1 Identify SIP planning target dates	-Timeline identifying critical SIP planning milestones and target dates	LR	-Consult and Coord SC -Coord. w/ all other SCs and Work Groups	-Reconcile with availability of Emissions input and Modeling timeline	Finished in Spring 2017 and presented to WESTAR -WRAP at 2017 Spring Board Meeting
8.2 Establish consultation-coordination framework	-White Paper from RHPWG Consultation and Coordination Work Group	LR	-Consult and Coord 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	Summer 2018 for protocol (ongoing otherwise)

<p>8.3 Consultation with WRAP member agencies (a) informal FLM (b) state to state (c) state with tribes (d) time-specified formal review of draft final RHSIP</p>	<p>-Keep record of meetings and conference calls and Record in SIP chapters or Appendix -Includes State-to-State Consultation and Tribal Coordination (Consultation?) -Includes written record and discussion of response to State/Tribal comments showing how they were incorporated (or not and why) in the RH SIP -Includes time for formal FLM review prior to public review and time for writing response to FLM comments to be included as RH SIP Appendix and changes to draft Final if warranted</p>	<p>LR</p>	<p>-Consult and Coord SC -Coord w/ tribes/states/FLMs</p>	<p>-Ongoing started with first Western Caucus Dec 2017 -State-to-State and Tribal Consultation must occur and evidence/outcome and be included in the RHSIP 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</p>	<p>December 2017 through 1st Quarter 2021 (depends on State schedule)</p>
<p>8.4 PUBLIC REVIEW PERIOD (a) public notice period (b) public hearing period (c) final record of adoption (d) packaging for EPA submission</p>	<p>- Public Notice Period - Potential Hearing - Responses to Public Comments Record included in RH SIP Appendix - Packaging for Submittal to U.S. EPA</p>	<p>Each State</p>	<p>Each State</p>	<p>TIMELINE (after FLM review and prior to public notice) VARIES WITH EACH STATE'S LEGAL SIP ADOPTION PROCESS REQUIREMENTS – 6-month minimum. One year max or more if legislative or executive delay!</p>	<p>2020 through July 2021 (depends on State schedule)</p>
<p>8.5 Deadline for submittal to U.S. EPA</p>	<p>- RHSIP includes RPGs, Inventory, New Glide Path and Justifications,</p>	<p>Each State</p>	<p>Each State</p>	<p>-July 2021 reserved for States to prepare final RHSIP and</p>	<p>JULY 31, 2021</p>

	Control Measures, Planned Reductions, Consultation Results, Modeling, Progress Report, Public Comments and Responses, etc.			review documentation package they send to US EPA	
RHPWG Administrative Tasks					
Bimonthly calls of RHPWG	<ul style="list-style-type: none"> -Firm Regular schedule -Agendas & Meeting Notes - WESTAR 2021 SIP Update as potential tool to determine in-kind vs WRAP regional contract services -Survey States to confirm which states cannot do specific tasks in-house, and other tasks that may arise as needed -Determine and conduct additional training needed for SIP preparation -Recommend options/process for addressing results of US EPA rule revisit and/or final guidance 	RHPWG (LR, TC)	Other Work Groups, as needed	<ul style="list-style-type: none"> -What needs to be posted on Webpage? -Evidence of consultation and coordination 	January 2018 - July 2021
Calls of Subcommittees	<ul style="list-style-type: none"> -Define specific Tasks and responsibilities for In-Kind Services -Scheduled as needed for coordination with other Work Groups or Contracted Services -Protocols and White Papers 	RHPWG (LR, TC)	Other Project Teams as needed for Specific Tasks	<ul style="list-style-type: none"> - How will the subcommittee be involved in contract services? -What “deliverables” should be posted on webpage? 	January 2108-time when all States have started public review (Spring 2021?)

Coordination and Consultation	-Prepare protocols for consultation with Federal Land Managers and Other States -Develop Coordination Process with Tribes -See also Action Item 8.2	RHPWG (TC)	Coordination & Consultation Subcommittee, Tribal Data Work Group	-RHPWG provides minimum interaction required for RHSIP element -Formal and Informal discussions can be documented	Continued from 2017 through July 2021
Evaluating Contract Services	-Input to RFP for task(s) -Review of Deliverables from contract	RHPWG (LR with TSC also TC)	May need input from all other Work Groups; RHPWG subcommittee pertinent to task	-States review to ensure that finished products meet needs for RH SIPs	March 2018 through Spring 2020
Conducting In-Kind Work	-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
Budgetary Needs	-Travel for key members to in-person meetings -Conference call lines for discussions or webinars -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

Task 1. Monitor Data Analysis

2016 draft U.S. EPA guidance²⁰ proposes a new visibility tracking metric designed to identify the most impaired days, where impairment is due to anthropogenic emissions. The new metric has generated considerable comment and requires further evaluation. Regional haze planning requires a regionally consistent analysis of IMPROVE monitor data. Further, the guidance allows adjustments to the Uniform Rate of Progress (URP) or glideslope to account for contributions from wildland prescribed fire and international anthropogenic emissions, by incorporating these contributions into the 2064 end point or natural conditions estimate. Also the 2000-2004 baseline (start point for

²⁰ 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

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. The RHPWG will seek consensus regarding: the identification and application of a “most-impaired” visibility tracking metric; potential revisions to the Natural Conditions estimates; and adjustments to the glideslope for the contributions of wildland prescribed fire, volcanic events, and international anthropogenic emissions.

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 will be evaluated by the Monitoring Analysis and Glideslope Subcommittee to identify trends, ranges, and linkages between source and monitor. This task will evaluate the derivation of the most-impaired metric and identify scientifically-sound alternatives, evaluate the extreme episodic event (E3) threshold and propose scientifically-sound alternatives, and evaluate current Natural Conditions (NC) estimates and propose 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 will be explored at the request of Hawaii. A similar method to identify international contributions to observed visibility has been requested by coastal states.

This task requires contractor support and coordination between the RHPWG Co-chairs, RHPWG Monitoring Analysis and Glideslope Subcommittee, RHPWG Modeling Protocol Subcommittee, the RTOWG, and the FSWG to provide technical oversight and direct contractor tasks. 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.

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, prescribed fire emissions) for the base year, as 2014 is used, and a decision about 2016 can be made, for base year performance modeling. 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 plots (gridded emissions weighted by the NOAA HySplit back trajectories) to

define geographic areas with greatest potential to contribute emissions to Class I areas and create emission inventory access tools (e.g. pivot tables) 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 Emissions Inventory Subcommittee, the Control Measures Subcommittee, the RTOWG, and Contractor is 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, and create back trajectories for several 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. The back trajectory analyses will 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 consultation and coordination, especially coordination between the Modeling Protocols Subcommittee and the RTOWG, and its selected contractor(s). The RTOWG, in coordinating with the Modeling Protocols 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 Modeling Protocols 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 Modeling Protocols 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.

This task 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, but 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 implication 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. 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 glideslope 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 guidance²¹ 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 and, unlike the Best Available Retrofit Technology (BART) analyses conducted in the first regional haze planning period, does not consider visibility as a factor. Timely completion of the control measures analyses and resulting 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 Control Measures Subcommittee and RTOWG and its selected contractor. 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.

²¹ 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

A white paper 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 in the control measure analysis white paper. 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. A BACT/RACT/BART clearinghouse of key source sectors controls will facilitate the four-factor control analysis. The Control Measures Subcommittee will evaluate the potential incorporation of visibility, as discussed in EPA guidance²², 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 end of 2019 in support of final modeling efforts.

Task 6. Embedded Progress Report (5-Year Reports)

The EPA’s recent revision²³ to the Regional Haze Rule eliminated some of the elements of the 5-year Progress Report, but included progress report requirements within the comprehensive SIP revisions. Progress Reports require use of the most current monitoring and emission data, as well as a calculation of change in visibility using either the worst- or most impaired-days’ metric. Since the 2018 goals were based on worst days rather than the most impaired days’ metric, the Progress Report through 2018 will compare the worst day’s average with the 2018 RPGs from the first planning period RH SIPs. Reporting on progress implementing the long-term strategy commitments of the initial RH SIPs is a required component including the status of implementation of BART controls. This task envisions 5-year progress reports for the year ending 2018 to be embedded in the comprehensive SIP revision 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 to complete the embedded progress reports is available to states and posted on the TSS v2 in a timely manner. Current visibility conditions, the visibility change from baseline and over the past 5 years, and changes in emissions over the last 5 years based on the most current data are necessary.

Task 7. Technical Support System TSS v2

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 glidepath. For the second RHR planning period, the intent is to archive the original TSS and to maintain TSS v2 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 v2 website.

The RHPWG will consult and coordinate with CIRA to ensure TSS v2 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

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

²³ US EPA, January 10, 2017, *Protection of Visibility: Amendments to Requirements for State Plans, Final Rule*, 82 FR 3078-3128

capabilities, as well as other work products such as protocols and white papers will be posted as they become available. The RHPWG will also identify TSS v2 training needs and provide this training.

Task 8. State Planning and Adoption Process

Identifying and meeting key planning target dates, milestones for technical support, and key consultation points is critical 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.

The RHPWG will prepare a Gantt chart with planning timelines; establish a consultation framework; identify 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; compile contacts lists of Tribes, FLMs, EPA Regional Offices, and state and local agencies engaged in regional haze planning; and direct and coordinate technical work and products 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.

Appendix C

Fire and Smoke Work Group 2018-2019 Workplan

Approved by FSWG members February 27, 2018

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

2017 FSWG Task	2017 Progress	Outstanding Tasks
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

Action Items for 2018-2019 FSWG Workplan

The table below lists the FSWG action items for the 2018-2019 WRAP Workplan. The information in this table is supplemented by the outline below, which provides some additional detail regarding the 2018-2019 FSWG activities.

Deliverable	Source	Funding	Timeline
WRAP Tools/FETS Update and Operation	Workgroup, Matt Mavko	Request funds for Matt's time.	2018

Evaluation of Smoke Management Plans	Workgroup	In-kind and contractor work.	2018
Historic and Future Fire Activity and Emissions	Workgroup	In-kind and contractor work.	2018
Exceptional Events: identification of key data to collect for demonstrations	Workgroup	In-kind work.	2018
Wildfire coordination between states/tribes on wildfire response and smoke management	Workgroup	In-kind work.	2018

- I. FSWG Management
 - a. Finalize workgroup recruitment
 - b. Schedule bi-monthly meetings
 - c. Send quarterly reports to TSC
 - d. Send yearly accomplishment narrative to TSC and WRAP board
 - e. Schedule work project completion with milestones of progress
 - f. Consider workshop/conference attendance to promote group's work

- II. WRAP Tools/FETS Update and Operation (contractor support needed)
 - a. Compile FETS survey responses
 - i. Restructure and update WRAP Tools/FETS based on survey
 - b. Update data streams and continue collecting annual activity data to support emissions inventory
 - c. Determine present trend of fire activity and emissions by state and ecosystem, and range of future year contributions of fire-related natural sources
 - d. Promote use of updated FETS for regional coordination
 - e. Propose methods for more timely information on planned burned with enhanced user roles
 - f. Help establish new, better SMP data connections to FETS - outreach focused

- III. Evaluation of Smoke Management Plans
 - a. Review current state smoke management programs
 - b. Track, reference, and apply effects of smoke management programs on fire management-related regional haze controls on ozone/PM/nitrogen
 - c. Identify Smoke Management Plans certified by states for use in prescribed burn exceptional event demonstrations

- IV. Historic and Future Fire Activity and Emissions (contractor support needed)
 - a. Identify potential methodologies to determine future year emissions (2023 [Ozone], 2028 [Regional Haze])
 - i. Synthesize current research
 - ii. Report possible approaches and calculate ranges of model future year contribution of natural sources for air quality modeling
 - b. Provide 2014 fire emissions to RTOWG for NEI review
 - c. Support for sensitivity testing for modeling platform (RTOWG, RHPWG)

- V. Exceptional Events: identification of key data to collect for demonstrations

- a. Identify key data to collect for exceptional event demonstrations
 - b. Develop resource material list with recommendations on key data sources and tools, with links
 - i. Post resource material list on WRAP website
 - ii. Develop a process for keeping resource material list up-to-date
- VI. Wildfire coordination between states/tribes on wildfire response and smoke management
- a. Determine how states, tribes, and federal agencies coordinate (or don't) during wildfire season
 - b. Identify ways to improve coordination

Appendix D

2018-2019 WRAP Workplan Oil and Gas Work Group Status Report

Final - February 20, 2018

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

The OGWG 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 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	2 nd Quarter 2017	Complete/Ongoing: 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	2 nd Quarter 2017	Ongoing: -Aug. & Sept. '17 OGWG Conf. Calls w/ RHPWG Co-Chairs -Identify coordination need(s) for 2018-2019 tasks

Oil & Gas Work Group	2017 Deliverable	Source	Funding	Timeline	2017 Progress
	<p>Oil and Gas Work Group Scope: Identify Oil and Gas sources for the entire upstream and midstream sectors Identify WRAP member agencies dealing with oil and gas sources</p>	Workgroup	In-kind work	2 nd Quarter 2017	<p>Complete: -Oct. '17 Oil and Gas Emission Sources approved by Consensus -June '17 identified WRAP Member Agencies</p>
	<p>Review Oil and Gas Specific Work Products: review existing work products to identify and discuss relevance, strengths, areas for improvement, and gaps</p>	Workgroup will initiate and continue to explore if additional assistance is necessary	Initiate in-kind work and continue to explore if funding is necessary	4 th Quarter 2017	<p>Underway: Incorporated into Road Map Scope of Work approved by Consensus Oct. '17 for contracted support</p>
	<p>Identify regional and local air quality planning needs: Regional Haze, Ozone, Climate Change, Hazardous Air Pollutants, and Other Air Pollution Indicators</p>	Workgroup will initiate and continue to explore if additional assistance is necessary	Initiate in-kind work and continue to explore if funding is necessary	4 th Quarter 2017	<p>Ongoing through coordination with TSC and RHPWG</p>

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-April 2018
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. [Completion in March 2018]
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. [Completion in Summer 2018]
 - 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. [Completion in Summer 2018]
 - 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. [Completion in March 2018]
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. [Completion in Summer 2018]

- 2.3 Develop and refine 2028 emission inventories – May 2018-Jan 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. [Completion in March 2018]

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. [Completion in Fall 2018]

- 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) – April-July 2018
 - 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. [Completion in Summer 2018]*

- 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 – May 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. [Completion in March 2018]*
 - 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. [Completion in June 2019]*

- 5.0 Control Measure Analysis (Reasonable Progress Analysis) – Jan-Dec 2019
- 5.3 Conduct regional/state source screening – April-June 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 Associated Regional Analysis Technical Support

12.2.1 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.

12.2.2 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.

12.2.3 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.

12.2.4 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.

12.2.5 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.

12.2.6 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

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. Some of the platforms that exist within the WRAP region include the Intermountain West Data Warehouse (IWDW), the Air Information Report for Public Access and Community Tracking (AIRPACT), various state and local State Implementation Plan (SIP) analysis, special studies such as FRAPPE/Discover-AQ, UBAQS, LVOS CABOTS/boundary condition study and Four Corners Study. The IWDW and AIRPACT platforms are readily adaptable for air quality planning purposes for the NAAQS, Regional Haze, and other programs, pending available resources and coordination with sponsoring agencies.

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 other WRAP member-sponsored regional air quality modeling groups including IWDW, NW-AIRQUEST, EPA-OAQPS, BAAQMD, and other state and local agencies performing regional ozone modeling;
- Provide guidance on more complete and uniform model performance evaluations (MPEs);
- Develop and implement a protocol to use the IWDW-WAQS capabilities as the WRAP Regional Technical Center;
- Several of these activities involve close coordination with other WRAP Work Groups as described in the RTOWG Workplan.

The WRAP Regional Technical Center, as currently envisioned, will provide data support and decision support for air quality planning in the WRAP region and will be comprised of three components. The IWDW²⁴ 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. The IWDW WAQS website hosts the results of a variety of western air quality modeling activities. The IWDW and IWDW-WAQS provide the data support. Decision support will be in the form of the updated TSS v2 (technical support system or planning data delivery system), which will provide access to a variety of data, work products, and data analysis capabilities to support air quality planning activities. The Regional Technical Center will utilize and build on these foundations.

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

²⁴ Intermountain West Data Warehouse, <http://views.cira.colostate.edu/tsdw/>

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. Some of the guidance documents include:

[Draft Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze.](#) (3.25 MB, PDF) - December 2014 - Draft version of the 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.](#) (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](#) (149 pp, 1 MB, July 2017)

Duties of the RTOWG and WRAP Staff Support

In consultation with the Chair or Co-Chairs from the Regional Technical Operations Work Group (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 alternating months 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. 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 (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 monthly/bi-monthly conference calls with members to provide an update on activity status and coordinate future work. Initial calls will be held monthly (February, March, April), and then bimonthly. 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 can be found at: <http://views.cira.colostate.edu/tsdw/>

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

The RTOWG is currently sponsoring a contractor to do a Modeling Representativeness Analysis. This analysis to 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.

RTOWG Action Items for 2018-2019 WRAP Workplan

Action Items for the 2018-2019 Workplan

VII. RTOWG Management

- a. 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
- b. Schedule and facilitate monthly conference calls or meetings. Schedule and facilitate additional calls on an as needed basis.
- c. Quarterly reports to TSC
- d. Yearly accomplishment narrative to TSC and WRAP board

- e. Schedule for work project completion with milestones of progress
- VIII. 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.
- a. Tribal Data Work Group
 - i. Simulated air quality impacts and comparison to Tribal monitoring sites
 - ii. Identifying regions of high air pollutant impacts
 - b. Fire and Smoke Work Group
 - i. Coordinate fire emission inventory development suitable for air quality modeling
 - ii. Evaluate impacts from fire emissions on regional air quality
 - c. Oil and Gas Work Group
 - i. Coordinate oil and gas inventory development suitable for air quality modeling
 - ii. Evaluate impacts from oil and gas emissions on regional air quality
 - d. Regional Haze Planning Work Group
 - i. pending additional direction
- IX. RTOWG high Level Task Descriptions document work to be provided principally by contractor services, with in-kind effort and support from RTOWG members. All tasks will require summary reports at their completion to document approach, assumptions, results, et cetera.
- a. Monitoring and Data analysis for most representative modeling year and modeling performance evaluation
 - b. Dynamic Model Evaluation to assess Regional Haze
 - c. Selection of global model simulations to be used for boundary conditions, and method for estimating natural and anthropogenic contributions to boundary conditions.
 - d. Base Year (i.e. 2014 or 2016) emission processing including those inventories provided by the other work group
 - e. Base Year Meteorological Modeling and meteorological model performance
 - f. Base Year Air Quality Modeling
 - g. Future Year (i.e. 2028) emissions processing
 - h. Future Year Air Quality Modeling
 - i. Source Apportionment/Sensitivity Modeling
 - j. Technology transfer/Make modeling platform available through the IWDW
- X. Participate in upcoming science conferences
- a. EPA Regional, State, and Local (RSL) Modelers Workshop (June 5-7, 2018, Boston, MA);
 - b. Community Modeling and Analysis Meeting (CMAS) (October 22-24, 2018, Chapel Hill, NC);
 - c. Western U.S. TEMPO Early Adopters Workshop (April 10-11, 2018, Fort Collins, CO); and
 - d. Other meetings and workshops as they are scheduled.

- XI. Leverage opportunities and work by WRAP member-sponsored technical centers as well as other technical and scientific groups to:
 - a. Investigate “background ozone” impacts to western U.S. locations, utilizing recommendations from the March 28-29, 2017 Background Ozone workshop and subsequent journal publication
 - i. Coordinate western regional ozone analyses with the planned collaborative effort among BAAQMD, CARB, and the Coordinating Research Council (CRC).
 - ii. 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.
 - iii. Develop an assessment protocol for modeling studies, include trans-Pacific sources, Mexico and Canada sources, and “natural” sources
 - iv. Assess coordination opportunities with academic and other modeling groups.
 - b. Provide guidance on more complete and uniform model performance evaluations (MPEs)
 - i. Identify key model performance statistics and representative figures to apply to regional air quality and meteorology simulations.
 - ii. Discuss/specify what we mean by “benchmarks” in the context of model evaluation.
 - iii. Work with IWDW-WAQS, EPA OAQPS
 - iv. Reference docs
 - v. Identify outcomes and committed participants to write and test
 - c. Develop and implement a protocol to use the IWDW-WAQS capabilities as the WRAP Regional Technical Center
 - i. 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.
 - ii. Evaluate additional modeling year (i.e. 2015, 2016) that fall outside the triannual NEI (i.e. 2014)
 - iii. Assess expansion and grid resolution of IWDW-WAQS modeling domain
 - iv. Address the IWDW-WAQS expansion to include additional states of MT, ND, SD
 - v. Address any additional expansion to add other western and central states?
- XII. Coordinate with Federal Land Managers (FLM) to discuss possible transfer of modeling products to FLAG (Federal Land Managers' Air Quality Related Values Work Group).
- XIII. RTOWG Administration
 - a. Development of budgets for projects as resources are available
 - b. Summary budget for RTOWG activities
 - c. 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 Programs ¹
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 Tribal 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 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 TDWG will 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 1 and 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 time Document 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, 2017 Ongoing: 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 members Ongoing: 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 reports Ongoing: 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 2017 Ongoing: 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 2017

Tribal Data Work Group Progress Update for 2017 Workplan Activities				
				Ongoing: 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, 2017 Ongoing: 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 Data Information Gathering Project

Tasks identified here can be supported by utilizing other organizations information gathering efforts. The TAMS Steering Committee will be gathering information concerning air quality monitors utilized by Tribes. That project identifies the monitors used, what pollutants are being sampled, meteorological equipment, and location. Data will be collected for the WRAP area but can be sorted by EPA region. 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 (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	October 1, 2018, 2019
	Membership in TDWG letter requesting participation by WRAP Tribes – ongoing yearly request	TDWG	In-Kind	October 2018, 2019
	WRAP for Tribes Fact Sheet	TDWG, Contractor	WRAP Budget	May 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 2018, 2019
	WRAP Tools Webinar	TDWG, WRAP Staff	In-Kind	August 2018, 2019
	Information Booth & Presentations at Annual National Tribal Air Forum Conference	TDWG, WRAP Staff	In-Kind	May 2018, 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	Summary Assessment: Tribal Air Quality Monitoring & AQS Submittal Status	TDWG, WRAP Staff and IWDW, Contractor	WRAP Budget, In-Kind	February 1, 2019

**Tribal Data Work Group
Action Items for 2018-2019 WRAP Workplan**

Task	Deliverable	Source	Funding	Timeline
-- Identify air pollutants, equipment used -- Determine goal of monitoring -- Identify unmet monitoring needs				
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
	-- Process 2014 NEI and refinements for base year modeling -- Develop and refine 2028 modeling emission inventories	TDWG, WRAP Staff	WRAP Budget, In-Kind	February-August 2018
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	Ongoing Framework 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	Ongoing See 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 January-March 2018
	Co-Chairs attendance at Technical Steering Committee In-person Meeting, 2 meeting per year	TDWG Co-Chairs	\$4,800	April and September 2018
	-- Conduct WRAP member tribe oil and gas industry emission inventory -- Identify WRAP member tribes dealing with oil and gas production emissions & their data sources	TDWG Co-Chair; OGWG, contractor, IWDW	WRAP Budget, In-Kind	April 2018
	Determine & locate the types of Tribal	TDWG	In-Kind	April 2018

Tribal Data Work Group Action Items for 2018-2019 WRAP Workplan				
Task	Deliverable	Source	Funding	Timeline
	data WRAP is interested in for modeling; will coordinate with the RTOWG	Co-Chairs		
	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	TDWG and WRAP Staff	In-Kind and suppleme ntal funds	September 1, 2018, 2019
	-- Provide information on the 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	September 2018
	Provide information on the benefits to Tribes for submitting AQS data	TDWG	In-Kind	September 2018

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

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

TDWG Workplan activities associated with the Critical Milestones for Regional Haze Planning Technical Support 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

Associated Regional Analysis Technical Support:

- 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.

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

WRAP 2018-2019 WorkPlan						2018												2019				2020																						
RHP	RTO	F&S	O&G	TD	CON	#	Task	January	February	March	April	May	June	July	August	September	October	November	December	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4																	
Critical Milestones for Regional Haze Planning Technical Support																																												
							Evaluation of RHR Revisions					X																																
							Monitoring Data Evaluation								X					X																								
							Base, Planning, and Future Year Emissions Data work					X								X							X																	
							Base-year model platform and MPE completed									X				X																								
							States use WRAP analysis for RH Planning					X																																
							Future-year "on the books" scenarios modeling													X																								
							Source apportionment & sensitivity analysis									X					X																							
							Technical work done, data products in TSS.v2																				X																	
Timeline by Task																																												
						1.0	Monitor Data Analysis																																					
						2.0	Emission Inventory																																					
						3.0	Air Quality Modeling																																					
						4.0	Analyzing Future Year Modeling Results																																					
						5.0	Control Measures Analysis																																					
						6.0	Embedded Progress Report																																					
						7.0	Technical Support System																																					
						8.0	States Planning and Adoption Process																																					
Detailed Timeline by Task																																												
						1.0	Monitoring Data Analysis																																					
						1.1	Evaluate EPA tracking metric and alternatives																																					
						1.2	Analyze monitor data (trends, ranges, linkages)																																					
						1.3	Identify dominant visibility-impairing pollutants for each CIA																																					
						2.0	Emissions Inventory																																					
						2.1	Process and evaluate 2014 NEI and refinements																																					
						2.2	Evaluate use of 2016 EPA modeling platform																																					
						2.3	Develop and refine 2028 emission inventories																																					
						2.4	Develop screening tools																																					
						3.0	Air Quality Modeling																																					
						3.1	Prepare modeling plan																																					
						3.2	Prepare and evaluate meteorological data																																					
						3.3	Perform dynamic model evaluations																																					
						3.4	Conduct sensitivity testing																																					
						3.5	Evaluate use of 2016 EPA modeling platform																																					
						3.6	Conduct/Evaluate AQ Modeling for BY and 2028 inventories																																					
						4.0	Analyzing Future Year Modeling Results																																					
						4.1	Resolve tracking metric and model output issue																																					
						4.2	Sensitivity/control strategy evaluation modeling for 2028																																					
						4.3	Evaluate BY & 2028 source apportionment modeling results																																					
						4.4	Evaluate change in visibility from BY to 2028																																					
						5.0	Control Measure Analysis																																					
						5.1	Develop criteria for source identification & 4-factor analysis																																					
						5.2	Determine whether to use visibility as "fifth" factor																																					
						5.3	Conduct regional/state source screening																																					
						5.4	States conduct control measure analysis																																					
						5.5	Identify 2028 control strategies & add to 2028 inventory																																					
						6.0	Embedded Progress Report																																					
						6.1	Access visibility conditions and changes																																					
						6.2	Analyze changes in emissions over the past 5 years																																					
						6.3	Prepare progress report																																					
						7.0	Technical Support System TSS.v2																																					
						7.1	CIRA staff to reach out to RHPWG to review TSSv1 & v2																																					
						7.2	Populate TSS with monitor data																																					
						7.3	Populate TSS with emissions data																																					
						7.4	Populate TSS with base year modeling results																																					
						7.5	Provide TSS training																																					
						7.6	Populate TSS with 2028 on-the-books modeling results																																					
						7.7	Populate TSS with 2028 ARC scenario modeling results																																					
						8.0	State Planning and Adoption Process																																					
						8.1	Identify SIP planning target dates																																					
						8.2	Establish consultation framework																																					
						8.3	Consultation with WRAP member agencies																																					
						8.4	Public comment period (30 days)																																					
						8.5	SIP Submission to USEPA																																					

WRAP 2018-2019 WorkPlan						2018												2019				2020					
RHP	RTO	F&S	O&G	TD	CON	Task	January	February	March	April	May	June	July	August	September	October	November	December	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Critical Milestones for Associated Regional Analysis Technical Support in 2018-2019																											
						BY Emissions Processing, Modeling																					
						2028 Emissions projections																					
						IWDW-WAQS 2028 On-the-Books Air Quality Modeling																					
						IWDW-WAQS 2028 Control Scenarios' Air Quality Modeling																					
						WRAP tools / FETS update and operation																					
						historic and future fire activity and emissions																					
						evaluation of smoke management plans																					
						ongoing Exceptional Events analysis and coordination																					
						WRAP member-agency coordination on wildfire response &...																					
						Review Existing Oil and Gas Work Products																					
						ID regional and local air quality planning needs																					
						Help Tribes understand WRAP /WESTAR product benefits																					
						Solicit Tribal membership in WRAP and participation in TDWG																					
						Coordinate to facilitate support of TIPS and tribal programs																					
Detailed Timeline by Work Group																											
Technical Steering Committee (TSC) Progress Calls and Meetings																											
						Planning/Oversight/Coordination/Direction calls																					
						Board/TSC/Co-Chairs meetings at Business Meetings																					
						Biannual Planning/Progress/Informational Meetings																					
Regional Technical Operations Work Group (RTOWG)																											
						BY Emissions Processing, Modeling																					
						Dynamic model evaluations for ozone/PM/nitrogen																					
						IWDW-WAQS AQ modeling for...																					
						2028 Emissions projections																					
						IWDW-WAQS 2028 On-the-Books Air Quality Modeling																					
						IWDW-WAQS FY Source Apportionment/Sensitivity Modeling																					
						IWDW-WAQS 2028 Control Scenarios' Air Quality Modeling																					
Fire and Smoke Work Group (FSWG)																											
						WRAP Tools/FETS Update and Operation																					
						Historic and Future Fire Activity and Emissions																					
						Evaluation of Smoke Management Plans																					
						Exceptional Events: ID key data to collect for demonstrations																					
						Coordination on wildfire response and smoke management																					
Oil and Gas Work Group (OGWG)																											
						Regional and local air quality planning needs																					
						ID and review of member agency oil and gas programs																					
						ID and review of member agency emissions management																					
						Assess impacts from oil and gas production																					
						Develop oil and gas tool box																					
						Member agency collaboration on sub-regional oil and gas management																					
Tribal Data Development Work Group (TDDWG)																											
						Help Tribes understand WRAP /WESTAR product benefits																					
						Solicit Tribal membership in WRAP and participation in TDWG																					
						Help Tribes understand monitoring data and use of AQS																					
						Help Tribes understand the EI process and NEI capability and use																					
						Ensure availability of monitoring/emissions data from Tribes																					
						Coordinate to facilitate support of TIPS and tribal programs																					
						Provide educational opportunities for WRAP member Tribes																					
Regional Haze Planning Work Group (RHPWG)																											
						BY Emissions Processing, Modeling																					
						Dynamic model evaluations for ozone/PM/nitrogen																					
						IWDW-WAQS AQ modeling for...																					
						2028 Emissions projections																					
						IWDW-WAQS 2028 On-the-Books Air Quality Modeling																					
						IWDW-WAQS FY Source Apportionment/Sensitivity Modeling																					
						IWDW-WAQS 2028 Control Scenarios' Air Quality Modeling																					
						WRAP Tools/FETS Update and Operation																					
						Historic and Future Fire Activity and Emissions																					
						Evaluation of Smoke Management Plans																					
						ID action items requiring coordination with others																					