

Checklist: Items necessary to complete an approvable Regional Haze SIP

(insert State name: _____ and target for SIP completion date: _____)

Implementation Requirement	SIP Activity	State-WRAP coordination	State Status & Notes	WRAP Function
(Each Class I area)				
BART	<p>BART determinations and the associated annual emissions for BART sources must be included in analyses to set Reasonable Progress Goals (RPGs) in the Haze SIP, for each Class I area (C1A):</p> <ul style="list-style-type: none"> ➤ Meet BART rule requirements ➤ Compliance schedule ➤ Specific detail on BART requirements ➤ FLM review/comment 	<p>SIP Chapter needed on sources:</p> <ul style="list-style-type: none"> ➤ That were BART-eligible ➤ Those subject-to BART ➤ Specific detail on BART requirements 	<p>WRAP continues to coordinate and report out state activities on BART determinations and SIP updates.</p>	<p>As noted in RPG Section A, below:</p> <ul style="list-style-type: none"> ➤ WRAP will combine BART emission reductions with other source categories in FRP18 regional analysis ➤ Periodic state and regional Inventory updates as BART is installed allow future modeling and visibility monitoring data analyses.
			<p>Completion Date: [_____]</p>	

Implementation Requirement		SIP Activity	State-WRAP coordination	State Status & Notes	WRAP Function
Reasonable Progress Goals	A.1 For Worst 20% Visibility days, establish 2018 Reasonable Progress Goal to reach natural conditions by 2064 default or other date selected by state (and why).	<ul style="list-style-type: none"> ➤ Will need to Include RPGs in SIP for each CIA and rationale language in SIP justifying RPGs not equal to Uniform Rate of Progress identified in RHR 	<ul style="list-style-type: none"> ➤ States will need WRAP to complete FRP18 modeling analysis and updates to TSS with 2018 visibility projections incorporating BART controls for 13 contiguous states ➤ Coordination on 4-factor analyses and emissions analyses 	<p>Completion Date: _____</p>	<p>For 2018 Final Reasonable Progress (FRP18) analysis, WRAP will need to check with states on:</p> <ul style="list-style-type: none"> ➤ BART emissions rates ➤ Corrections/updates to PRP18 emissions: <ul style="list-style-type: none"> ○ Mobile ○ Marine Shipping ○ O&G ○ Non-BART Point <p>WRAP staff assisting states with emissions and 4-factor analyses</p>
	A.2 For Best 20% Visibility Days, establish that progress on Worst Days does not make 2018 Best Days worse	<ul style="list-style-type: none"> ➤ 4-factor analysis for sources beyond: <ul style="list-style-type: none"> ○ State rules & permits on the books ○ BART sources ○ Federal/state mobile source rules ○ Smoke management programs 			
	A.3 Establish 2018 Worst and Best Reasonable Progress Goals in dv - discuss why those values were selected and CAA 4-factor analyses for sources				

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Reasonable Progress Goals, cont.	B. Develop Long Term Strategy, based on state's share of emission reductions needed to meet RPGs/improve visibility and other significance factors	<ul style="list-style-type: none"> ➤ Will need to analyze emissions and 4-factors for non-BART stationary source and area source categories with significant emissions ➤ Other sources may be included as well for non-visibility reasons. 	WRAP staff assisting individual states with emissions and 4-factor analyses	Completion Date: [_____]	
	C. Include consultation element with other states and FLMs on impacts and measures	<ul style="list-style-type: none"> ➤ Individual states to identify impacts on other states and impacts on their CIAs ➤ State may include measures or rationale for not including measures 	WRAP will provide the FRP18 emission inventory update, regional modeling results, and associated visibility projections as based on final 2018 emissions projections as noted in Section A, above	Completion Date: [_____]	WRAP staff available to facilitate and coordinate with the states within and outside the WRAP region.

Implementation Requirement		SIP Activity	State-WRAP coordination	State Status & Notes	WRAP Function
Reasonable Progress Goals, cont.	D. Fire Emissions	<ul style="list-style-type: none"> ➤ Smoke Management Program, including elements of Enhanced SMP. ➤ Insure Fire Forum policies for categorizing Prescribed Fire into Anthropogenic and Natural are followed. ➤ Track fire activity as appropriate. 	<p>States, with assistance from WRAP Fire Emissions Tracking System (FETS):</p> <ul style="list-style-type: none"> ➤ Report fire activity ➤ Track and report calculated emissions ➤ Smoke management coordination 	<p>Completion Date: [_____]</p>	<ul style="list-style-type: none"> ➤ WRAP facilitates state, tribal, and federal coordination of fire activities. ➤ Advises on application of FETS and interagency coordination policies developed by the Fire Emissions Joint Forum. ➤ Provides updated Fire emissions for ongoing analyses.
	E. Area and Dust Emissions	<ul style="list-style-type: none"> ➤ Document control requirements for construction, other area, and small point source strategies covered by State programs and existing rules 	<p>Dust Emissions Joint Forum has completed New Mexico PM₁₀ Dust Pilot SIP for Regional Haze - available as an analysis resource</p>	<p>Completion Date: [_____]</p>	

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Calculate baseline and natural visibility conditions	<p>A. Worst 20% and Best 20% Visibility Days' averages for the 2000-04 baseline monitoring period.</p> <p>B Identify Worst 20% and Best 20% Visibility Days' Future Natural Conditions</p>	State to include these data, their source, and any supporting calculations in SIP	Continue to monitor developments in IMPROVE network and use of IMPROVE equation	Completion Date: [_____]	<ul style="list-style-type: none"> ➤ Continue adding IMPROVE data to VIEWS and TSS as they are released. ➤ Update and improve natural conditions estimates
Monitoring Strategy		SIP narrative describing visibility monitoring data and related air quality and analysis results, based on using the IMPROVE monitoring sites with supplemental descriptions for any IMPROVE-like sites	<ul style="list-style-type: none"> ➤ WRAP developed SIP language for states to include by reference. ➤ Continue IMPROVE monitoring data delivery in VIEWS and TSS tools, for upcoming periodic plan reviews and revisions. ➤ Annual reports to EPA and FLMs to be handled by WRAP 	Completion Date: [_____]	<ul style="list-style-type: none"> ➤ VIEWS & TSS maintained by WRAP/other RPOs to provide reasonable progress tracking data and analysis tools for regional haze. ➤ Speciated PM data are also available to users for other air program purposes. ➤ Additional benefits to analyze regional transport of air pollutants from one jurisdiction to another.

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Periodic Review Schedule	Obligation to complete mid-course SIP progress check (around 2012, may require SIP revision) and next milestone SIP (2018)	State must commit to Plan review and revision at 5- and 10- year increments, including monitoring strategies	<p>States have identified that WRAP will provide:</p> <ul style="list-style-type: none"> ➤ Technical support for review of 2009 SIPs, and continuing implementation analysis support 2009-12 ➤ Reasonable Progress tracking and verification infrastructure, through VIEWS and TSS ➤ Emissions tracking and verification infrastructure through EDMS and FETS ➤ Regional technical infrastructure, data, and analyses for SIP review, including regional modeling analyses for future SIP revisions 	<p>Completion Date:</p> <p>[_____]</p>	WRAP is slated to maintain the infrastructure and support services, and keep up-to-date data available to enable states to perform 5- and 10-year plan review and to re-activate planning activities to meet future plan submittal requirements.

Known Regional Technical Issues to be addressed or deferred in 2018 Final Reasonable Progress (FRP18) Analysis (as of September 30, 2008)

MODELING: GEOS-Chem

The coarse resolution global model "GEOS-Chem" that provides "continental scale boundary conditions" to CMAQ regional haze modeling done by the WRAP and other RPOs needs to be reevaluated to ensure that the physical layer transport into the model domain is correct. As reported at July 29-30 WRAP Modeling Workshop in Denver, the GEOS-Chem model may also be playing an important role in ozone transport, and perhaps formation, which in turn affects particle formation during certain seasons during the year.

MODELING: CMAQ

The WRAP has resources budgeted for regional modeling analyses to complete the final model run (FRP18) for regional haze planning, that will need to include all the BART in the contiguous WRAP region. In light of the recent CAIR decision, the western states need to talk about what this means for assumed future 2018 emissions from the east that affect Colorado and other states on the "eastern edge" of the WRAP region.

MODELING: PM Source Apportionment Technology (PSAT)

The most current version of PSAT modeling was done in mid-2006 and displayed on the TSS uses the older Plan02c and Base18b emission inventory datasets. It is resource intensive, but there may be a need to run PSAT for FRP18, to reflect BART emission reductions across the WRAP region, and perhaps more complete and current O&G emissions within the inter-Mountain region. Choosing to do a FRP18 PSAT that means that Plan02d scenario should also be re-run with PSAT, as the older Plan02c PSAT cannot be compared directly to an FRP18 PSAT results. Funding for these FRP18 and Plan02d PSAT runs is not presently in the WRAP RMC budget.

EMISSIONS: 2018 BART Determination Emissions and 2018 Updates/Corrections for Non-BART Point, Area Sources, and Mobile Emissions:

The WRAP has resources budgeted to review the PRP18 projected emissions for BART and non-BART point sources and area sources with each state, to gather BART determination emissions and updates/corrections to the other categories. The WRAP has a small amount budgeted to update the 2018 mobile emissions to address more recent (since mid-2005) federal mobile source rules to reduce emissions.

EMISSIONS: 2018 Off-Shore Marine Shipping:

2018 projection of growth in shipping emissions in the eastern Pacific Ocean will be applied as a sensitivity analysis to the FRP18 results to identify the added impact of shipping if it grows as projected. This simple sensitivity analysis is presently budgeted in the WRAP RMC tasks.

EMISSIONS: 2018 O&G Emission Inventory

2018 O&G emissions could be changed to address growth between the current 2002 base year to the more current 2006 activity levels, necessitating the substitution of 2018 emissions projected from 2006 base year. That change would make the comparison of Plan02d O&G emissions to these revised 2018 O&G emissions projections problematic, as all other 2018 emissions projections were made from 2000-04 averages or were based on 2002 emissions. For example, the recent IPAMS-WRAP Phase III O&G EI for the Denver-Julesburg Basin indicates that the drill rig NOx emissions were significantly under estimated relative to

2002 WRAP O&G EI work. Other O&G sources may have been overestimated, so maybe all this will balance out, but industry would like to use the best available data – Phase III.

EMISSIONS: Ammonia

The science of understanding ammonia is evolving quickly, so it may be worthwhile to revisit the ammonia emission inventory since this pollutant plays a key role in the formation of sulfate and nitrate particulates. The ammonia EI was held constant 2002 to 2018 in the current WRAP modeling, so changing the EI may not have a noticeable relative effect in projecting future visibility. This is a significant technical effort for which there is no funding in the WRAP RMC budget.

EMISSIONS: Biogenics

Recently, NCAR has released a new biogenic emission model "MEGAN" that performs much better than the older biogenic emission model "BEIS" used by the WRAP. Since VOC and NO_x biogenics play a significant role in ozone formation which affects particle formation, it would be good to get this update into the modeling if possible. This would be a major effort for the WRAP RMC, as the MEGAN model is not ready to plug in, still a research application. This need is a lower priority compared to looking at O&G and Ammonia.

Coordinating Needs:

CONSULTATION: State-to-state Coordination of Significant Impacts

The WRAP is able to more fully support the RHR consultation requirement, although that depends on states being ready to coordinate and consult. With BART reductions not identified, WRAP region states are not ready to fully engage in those discussions. The RHR requires coordination with one another on each other's impacts to surrounding states' CIAs.