

PATHWAY Forum Meeting Summary

PATHWAY FORUM MEETING
October 25, 2007
North Tahoe Conference Center
Kings Beach, California

MEETING ATTENDEES

Forum Members: Laurel Ames, Mike Berg, Mike Bradford, Carol Chaplin, Dennis Cocking, Michael Donahoe, John Falk, Adrian Freund, Dave Hamilton, Bill Hetland, Bill Horn, John McCall, Bruce McNulty, Jennifer Merchant, Barbara Perlman-Whyman, Anga Rebane, Jill Sarick Santos, Kay Scherer, Gordon Shaw, Glen Smith, Steve Teshara, Patrick Wright

PATHWAY Executives and TMDL Team: Harold Singer, Lauri Kemper, Doug Smith, Bob Larsen, Hannah Schembri (Lahontan); Terri Marceron, Bob King (USFS); Tom Porta, Jason Kuchnicki (NDEP); John Singlaub, Larry Benoit (TRPA)

Project Team: John Reuter (Tahoe Environmental Research Center), Jeremy Sokulsky (Environmental Incentives), Michelle Sweeney (Allegro Communications)

Kearns & West Facilitation Team: Anna West, Christine Kennelly, Janet Thomson

WELCOME, INTRODUCTIONS, AGENDA REVIEW

Anna West welcomed the Forum, Focus Team, agencies, and general public. She provided a brief overview of the day's agenda, meeting structure, and groundrules and highlighted the goal of the October meeting: to receive Forum member input on ways of packaging pollutant control opportunities (PCOs) to meet the Clarity Challenge.

CONTEXT FOR THE DAY'S DISCUSSIONS

Harold Singer (Lahontan) explained that the meeting will serve as the start of a dialogue on strategies to achieve the Clarity Challenge including general approach themes and public acceptability of Pollutant Control Opportunities (PCOs). The TMDL agencies are hoping to receive further input between Forum meetings and again at the December 6th Forum meeting. Harold encouraged Forum members to have conversations within their communities and constituencies about the opportunities discussed here today as well.

Harold explained that, for the purpose of initiating dialogue, the Forum will look at scenarios which are "strawman ideas" of how to integrate approaches which utilize different combinations of PCOs. In mid-late December, with the assistance of the input received by Forum members, the TMDL team will put together a draft final scenario(s) which will be the proposed methodology for implementing the TMDL – subject to environmental review.

In order to help narrow the decision space the TMDL team will share the information gathered over the past several years and help Forum members understand where the best opportunities for input lie. The TMDL team is seeking feedback about the scenarios both on an overall level and on a detailed, individual PCO level. Forum members should focus on the social and economic perspective considering questions such as: “Can we sell this PCO or strategy to the basin? To people outside the basin? To potential funders? Can we all rally around these PCOs and strategies?”

The scenarios reach the Clarity Challenge, which is 75 to 80 feet of clarity that will be measured over the last five years of the upcoming twenty-year period. Through the discussion today we want to know whether Forum members think this is feasible. “Can we get to the Clarity Challenge? What will it take? Do the draft scenarios indicate a direction that seems feasible? What adjustments might improve the scenarios?”

Tom Porta (NDEP) provided detail on the scenarios and PCOs for the Forum to review. There are four source categories: stream channel erosion, forest uplands, atmospheric deposition, and urban runoff. We are looking at these categories on a basin-wide scale. Within each category we have various tiers of PCOs that we can examine and we will use those to build our scenarios. The information on the handouts indicates sample PCOs as well as illustrative scenarios with capital costs and O&M costs. The O&M costs portrayed are in addition to what are currently considered “EIP costs.”

The pollutant reduction scenarios include some level of implementation across all source categories. We have packaged them so that we receive a certain clarity improvement for each set of PCOs. We want you to tell us whether the scenario is socially and politically acceptable. What are the pitfalls, challenges, and barriers presented by each scenario or components of the scenario?

If we look at the actions we are currently taking and focus on increased implementation we will only get 74 feet of clarity over the next twenty years (just shy of the Clarity Challenge). The three illustrative scenarios we will show in the afternoon result in 75-80 feet of clarity, meeting the Clarity Challenge.

Q. When you have us look at the scenarios you are seeking individual commentary, not consensus opinion from the Forum, is that right?

A. Correct. We are hoping to hear you debate the issues today. If there is consensus, that is wonderful, but we likely will not get there. We want to stimulate discussion today. There is no bad idea; we want to hear everything you have to say.

Q. Specifically, you want us to identify whether there are social, economic, and political problems with the scenarios?

A. Yes. And if we can overcome the problems by doing something specific, let us know what that might be.

Q. How are you calculating costs, especially outside of direct implementation? What if you have transportation incentives, are you using data from other regions?

A. It varies across the board. We can discuss this more fully when we get to the specific areas.

Harold Singer added that the TMDL team recently put together a chart on cost vs. benefit. This is not in relation to any specific scenario but is a broad-brush perspective. It will take \$1-\$1.5B of capital costs to reach the Clarity Challenge (2007 dollars).

Q. Last month you showed us a chart that indicated we would need to spend several billion dollars. Did that include O&M?

A. Yes, and this chart just shows capital costs.

Q. Do these numbers reflect all the agencies working together towards a common goal with a strategic plan in place?

A. Yes. This also includes private contributions, not just governmental contributions, and private property BMP implementation. As a point of comparison the EIP in the past ten years (including private, local, state, and federal money) spent \$1.1B. About half of that funding was for water quality.

Q. Are you confident that you can get all the agencies on board working together and budgeting and planning with these goals in mind?

A. That is part of the feedback we want to hear from you all today. But we do need everyone rallying together to get this to happen.

Q. With the law of diminishing returns, why does this graph of cost vs. benefit seem nearly linear?

A. This is how the cost analysis broke out to this point. It does not show improvements out to 100 feet of clarity, only to a certain point. The graph will flatten out if you extend the clarity improvements.

Q. In the scenarios is the assumption that one size fits all for the basin? Are you doing the same in the Upper Truckee as in a small rural subdivision?

A. No, we tried to combine PCOs appropriate for certain areas.

STREAM RESTORATION AND FOREST MANAGEMENT RECOMMENDATIONS

Jeremy Sokulsky (Environmental Incentives) provided an overview of the handouts. The first handout provides a description of the different source categories, split into tiers and sample PCOs within those tiers. This is not a comprehensive list of PCOs. The second handout provides the pie chart that the Forum has seen before that identifies the extent to which each source category contributes to reductions in clarity. This handout includes the analysis of the pollutant reduction opportunities described at the last Forum meeting including capital and O&M costs. Some of the costs have been changed by taking advantage of the optimal selection of cost-effective measures across source categories. Additionally, the numbers have been revised based on the amount of reduction from urban treatment based on catching an inconsistent assumption. Therefore, today we see a higher pollutant control per dollar in urban areas as compared to last month.

Bob Larsen (Lahontan) presented an overview and requested feedback on recommendations for stream restoration and forest management practices based on the TMDL team's analysis of the data. The intent is to simplify and target development of the TMDL implementation strategy by

focusing on the areas with the greatest decision space and potential for substantial clarity improvements.

The first recommendation is to emphasize fine sediment removal since it is responsible for 2/3 of the clarity condition. Reducing fine sediment has a great potential to improve lake clarity and a focus on this source category will help the TMDL team target implementation actions for the first 20 years.

The two other recommendations relate to streams and forests which, based on the percentage of the total pollutant load to the Lake, account for nearly an order of magnitude less impact than atmospheric and urban sources.

The load reduction opportunities for forest uplands are relatively limited. Additional reduction efforts do not appear cost effective and current practices effectively reduce loads. While Tier 3 implementation can achieve greater reductions, the corresponding cost rises dramatically up to \$3B. Current practices are very consistent with the Tier 1 and Tier 2 efforts that effectively reduce pollutant loads. **The TMDL team recommendation is to continue the current work on forest uplands, including road and trail maintenance, re-vegetating and treating disturbed areas, and implementing BMPs while treating forest fuels.**

For stream channels the achievable reductions are not very great, yet stream restoration is highly cost-effective and provides additional water quality and ecosystem benefits. **The TMDL team recommendation is to continue current and planned stream restoration activities and support monitoring and research.** We will be getting more information with respect to water quality benefits in the upcoming years and will adjust our crediting and tracking accordingly.

Jeremy Sokulsky noted that the base assumption in the scenarios that the Forum will see today is that for stream restoration we will do Tier 2 activities, including a combination of restoration activities and bank stabilization around roads. This would be performed at 80% of the potential restorable areas over the next 15-20 years around the Basin and would provide pollutant load reductions of about 2%. For forest uplands, we will treat and maintain 80% of unpaved roads and 80% of disturbed areas (60% with standard practices, 10% of advanced practices, and 10% of restoration) and will conduct fuels management on 20% of the forest, resulting in a 1% basin-wide pollutant load reduction.

Q. What does restoration of unpaved roads in forest areas mean?

A. Decommissioning roads.

Q. What flexibility do we have to assign money to be spent where we want as we review these scenarios?

A. With respect to forest and stream channels there is some variability. If we wanted to have a discussion about that level of implementation we could, though the load reduction is relatively small. With the current funding streams already in place we think it would be best for us to move forward with the recommendations we have given you.

Q. Do the percentages shown reflect units (e.g., acres) or the amount of sediment reduced?

A. This is a basin-wide average. Costs will vary per unit from the average represented here.

Q. Does this work take into account other actions such as defensible space? How do such fuel reduction actions, costs, and impacts fit into this?

A. Defensible space is not part of the forest recommendation. An urban lot doing defensible space would fall under the “urban” category. We assume there is no net load reduction. We assume appropriate BMPs will be used, and there are no load costs or deficits associated with that activity. That would be on a finer scale than this analysis.

Q. Will there be forest fuels management in those areas?

A. We assume 15-20% treatment of areas for forest fuels. That is an estimate, and we assume that the percentage would be treated over 15-20 years. Again, no net benefit or loss, we assume that BMPs are applied and there is no load generation or reduction. We also assumed that there would be some percentage of that area that would have opportunities to increase the levels of BMPs (such as restoration when we leave a treated area to achieve load reduction).

Q. You stated that reducing nitrogen and phosphorous does not give us much improvement in clarity. Is the opposite true that if we increase nitrogen and phosphorus there is not much of a clarity decline?

A. Since 2/3 of the clarity condition is driven by fine sediment, if you increase the nutrient load that still only accounts for 1/3 of the clarity condition. However, it is still important to reduce nutrients since that third is important; we just want to focus on improving the other 2/3 first.

ATMOSPHERIC POLLUTANT CONTROL OPPORTUNITIES

John Reuter (Tahoe Environmental Research Center) provided an overview of the opportunities for pollutant load reduction from atmospheric sources. Atmospheric sources account for about 15% of the pollutant load to the Lake, while urban sources account for 72% of the pollutant load.

The load reduction estimates are based on emission reduction estimates. We looked at the California Air Resources Board (CARB) emission inventory and customized it for the area. We considered mobile sources (tailpipe emissions), paved roads and parking, unpaved roads, construction site disturbance, and wood combustion. We used published equations and relationships to develop information on each source. In the results table note that most of the inorganic nitrogen comes from exhaust. For phosphorous and inert species (a combination of fine particles and the elemental carbon coming from the back of tailpipes), most of the pollution comes from unpaved and paved roads. Controlled burns are not really a factor as we have found that residential wood combustion accounts for 7-10 times more pollutants than controlled burns. Based on work during the Angora Fire we determined that the fallout would have only been about 2-5% of the total pollutant load.

Potential Tier 2 PCOs include realistic estimates of pollutant load reductions, while Tier 3 PCOs provide an upper bound of load reduction (i.e., the “Cadillac version” that assumes that cost and other constraints are not an issue). Sample PCOs include street sweeping, controlling dirt from unpaved roads or construction sites, and a reduction in vehicle miles traveled (VMT). Tier 3 generally includes all of Tier 2 with extra implementation, such as a 25% VMT reduction rather than a 10% VMT reduction. If you did all the Tier 3 reductions you would get a 7% basin-wide

reduction. This is a little more opportunity to work with than forest and stream channel, but not as much capacity for improvement as with urban sources. About half of that 7% reduction comes from vehicle emission controls which are very costly. Reducing VMT reduces not just nitrogen but also fine particles. A 10% VMT reduction will reduce the fine particle pollutant load by 0.4%, while a 25% VMT reduction will reduce the fine particle pollutant load by 0.9%.

Given the large effect of fine particle reduction on lake clarity, the lower effect of nitrogen reduction on clarity, the high cost associated with mobile source control for nitrogen, and the lower impact of significant VMT reductions on basin-wide fine particle reduction, **we recommend that in early efforts to meet the Clarity Challenge, atmospheric pollutant control reduction strategies focus on fine particle and phosphorous control.** Efforts to reduce VMT for the purpose of nitrogen control should be considered based on a larger discussion of transportation. TRPA and others should continue to engage in VMT reduction discussions to meet other thresholds. **We recommend for consideration street sweeping, use of traction materials for fine particle and phosphorous removal, and restoration of unpaved surfaces.**

Jeremy Sokulsky noted that there are large, cost-effective opportunities for reducing fine particles from transportation infrastructure (roads) as well as from stationary sources (both unpaved and paved roads) and from reductions in wood-burning stove use. The three scenarios presented today center on: 1) enhancing current practices; 2) focusing on innovation, and; 3) giving a maximum all-out push to improve clarity. Each scenario on the table results in the same near-5% reduction from atmospheric sources.

Q. Do sweepers exist that have the ability to remove particles smaller than 20 microns?

A. Yes, there are water-based vacuum street sweepers that do not re-suspend everything in the air.

Q. Do mobile sources include boats? Are we considering commercial boat restrictions?

A. The boating restrictions would be in line with TRPA and CARB efforts.

Q. In Nevada we do not have to do annual smog checks. Have you looked into the possibility of requiring smog checks in the Nevada sections of the Basin?

A. That level of discussion still has to happen, but that is a great question.

Q. Is there a significant change or shift in pollutant loads if there is a change in fuel sources, such as to diesel or biofuels?

A. I do not know. That is a good question.

URBAN RUNOFF POLLUTANT CONTROL OPPORTUNITIES

Larry Benoit (TRPA) provided an overview of urban runoff PCOs based on an analysis of urban subwatersheds with greater than 1% coverage. Urban runoff areas are the largest contributor of fine particles to the Lake. The application of Tier 1 PCOs (an extension of current practices with greater implementation) will result in about a 24% reduction in fine particles, while Tier 2 PCOs (advanced practices such as media filtration) results in a 40% reduction in fine particles if applied to 100% of the watershed. Tier 3, comprised of 60% pump and treat in urban watersheds with concentrated impervious coverage and 40% Tier 2 applications in the remaining areas, results in

nearly a 45% reduction in fine particles. The capital costs are displayed on the chart in the presentation. The costs have not accounted for the stormwater infrastructure already in place on the ground.

Tier 1 PCOs include sweeping in intensive traction abrasive areas, increased fertilizer management, and 50% private property BMPs (including all developed parcels – commercial, institutional, residential). Tier 2 PCOs involve more advanced de-icing strategies, media filters in stormwater vaults, additional stormwater treatment, turf management strategies and required education for professional turf managers to reduce fertilizer use, control of nitrogen and phosphorous through retail fertilizer sales, and 100% private property BMPs. Options such as rubberized pavement are not included they cannot yet be quantified. Tier 3 is mainly based on a pump and treat analysis and includes a Tier 1 level stormwater infrastructure for collection of runoff, localized holding ponds for stormwater storage, 9 regional stormwater treatment facilities that employ micro-filtration, and Tier 2 treatments applied to dispersed coverage subwatersheds.

We have three recommendations for urban runoff PCOs in order to meet the Clarity Challenge: 1) we need to consider Tier 1 applications in dispersed coverage areas; 2) we need substantially more Tier 2 treatments (filtration, O&M); and 3) we need to consider pump and treat applications in some areas.

Jeremy Sokulsky explained that the illustrative scenarios will involve three options for urban pollutant load reductions: a retrofit of existing technologies; a focus on innovation, including technologies such as micro-filtration; and an all-out push, doing everything we can do, including some pump and treat. The first two options will result in about a 25% reduction in fine particles, while the all-out push will result in a 32% reduction in fine particles. There is a significant O&M cost for all these applications ranging from \$2M/year to \$6M-\$9M/year due to increased technology installation. For the capital cost projections if you use innovative technology you can get a greater load reduction through implementation over a smaller area of the Basin, resulting in lower capital and O&M costs than through a retrofit of current technologies on a greater land area.

Q. Did you take into account the stormwater work from the EIP?

A. No. Kim Gorman will be helping the Nevada Tahoe Conservation District with completing the EIP database and GIS coverage to help us determine that, but it is also a matter for the operators of that inventory and infrastructure on the ground to help us determine how that fits in and what the value is relative to these implementation costs.

Q. You cannot really count everything you have done today because with the particulate matter standards becoming increasingly restricted, even measures that are in place will require upgrading and retrofitting to make them functional under new scenarios. Is that correct?

A. That is true; the cost would not be one-for-one. Part of the equation is evaluating what we have on the ground relative to those needs.

Q. Under Tier 1 you had an assumption of 50% coverage of BMPs on private property. Where are we today in terms of implementation? Also, do you assume some reduced level of effectiveness for BMPs associated with private property as opposed to a more public solution?

A. Right now we have about 18% implementation of BMPs basin-wide. Nothing in our analysis assumed less effectiveness. However, for Tier 3 the analysis assumes collection and treatment of all runoff from concentrated coverage subwatersheds.

Q. As a local government representative it will be important to see what this means for my jurisdiction before I make decisions and recommendations. I would like to see the information broken out around the Lake.

A. The pump and treat feasibility study will examine both a regional and a local scale. We do not have all the answers, and we will need information from all of you to understand how we might be able to make pump and treat work and where it makes the most sense.

Q. Does the cost for O&M for the “innovation” scenario including maintaining all the micro-filtration systems and infrastructure and conveyance systems to those areas?

A. Yes.

Q. Is pump and treat really less costly, in terms of O&M, than a retrofit?

A. Yes, it is based on the difference in the amount of pipe and other materials required for the retrofit.

DISCUSS ILLUSTRATIVE SCENARIOS AND REVIEW RECOMMENDATIONS

Jeremy Sokulsky presented the three illustrative scenarios to the Forum. Scenario A includes a retrofit of current technologies and enhanced best practices. This scenario will not include pump and treat but will have enhanced practices in urban areas including increased intensity of passive treatments of urban stormwater. It will address transportation infrastructure and stationary sources of atmospheric fine sediment and will have the forest and stream channel recommendations that Bob Larsen presented earlier. The result of this scenario is 78.5 feet of clarity, reaching the Clarity Challenge, at a capital cost of about \$1.8B and O&M of about \$14M/year.

Scenario B focuses on innovation and advanced practices, minimizing the amount of area treated. This will use conveyance and treatment in dense urban areas and advanced passive treatments in dispersed urban areas. It involves highly intensive controls to reduce atmospheric deposition of fine particles from transportation infrastructure and stationary sources, and the same controls for forest and stream channels. This results in 78.5 feet of clarity at a capital cost of \$1.5B and \$11M/year of O&M.

Scenario C involves an all-out push, treating the maximum amount of area possible using the most effective pollutant controls. This assumes that 80% of all urban and atmospheric sources are treated, 60% with advanced treatments and 20% with current best practices. It involves the same forest and stream recommendations as the other two scenarios. This results in 81.5 feet of clarity at a cost of \$2B in capital costs and \$15M/year of O&M.

Q. Do any of these scenarios get better the longer we do them or do they all have a linear relationship?

A. Scenario A taps out the land area first, so you would have to retrofit again if you wanted greater gains. Scenario B leaves areas untreated that would be available for further improvements.

Comment. Some of the items we have defined as “innovative” have been available for years, such as particulate matter-certified street sweepers.

A. That is true, these are broad themes. Some of these “innovative” practices have not yet been tested in the Basin, though they exist elsewhere, so they would be innovative for our area.

Q. Can we disaggregate the data and find out what the pollutant load reductions are for each PCO?

A. We have a table for distribution that shows for each setting what percentage of the area is being treated with each tier of PCOs.

Q. If we like something from one scenario, will we have the data to know what impact that piece will have on other scenarios?

A. If you tell us what you would like to see we can work it into the model and figure out what the effects are.

Q. Is making progress on all source categories an operating principle for us? Do we need to provide feedback according to that paradigm?

A. Let us know which combinations of PCOs you think make the most sense.

Q. Is there a way to help us understand which PCOs involve high O&M costs rather than high capital costs?

A. We understand the difficulty of bearing high O&M costs. You can look at the detailed table to see, per tier and per setting, what the O&M costs are.

Q. What is the relationship between the scenarios and the tiers?

A. We have given you a handout that shows the tiers and the representative PCOs within each of those tiers. The scenarios combine various tiers of PCOs.

Q. These costs do not seem to include items we would be doing at the same time for ecosystem restoration – they only focus on water quality.

A. That is correct. We are focusing on increasing the Lake clarity. Some of our efforts will have ecosystem benefits on other thresholds, but our focus is water quality.

Q. Capital improvements will likely fall on the most urbanized areas, and therefore, on urban taxpayers, is that right? Or will the costs be distributed basin-wide?

A. We would like your input on that issue.

Q. We have heard a lot about particles coming off the roadway. I am confused about VMT being dropped from the scenarios if we have heard that VMT contributes greatly to the fine particle pollutant load.

A. A 25% VMT reduction actually only results in less than a 1% reduction in particles basin-wide. This is why we suggest not focusing on VMT right now.

Jeremy Sokulsky sought and received general agreement from the Forum on the recommendations made in the morning (focusing on fine sediment and focusing the day’s discussions on urban and atmospheric source reductions rather than forest and stream channel reductions).

Q. Can we lump together the reductions from fine sediment and from nitrogen and phosphorous so that if one measure only reduces one pollutant load and another gets you both nutrient and fine sediment reductions, you opt for the one that gets you both? It would be helpful for funders to see this information.

A. A lot of the secondary benefits are in the noise within the margin of safety. We can check on that again once we get to a more project-specific level of analysis.

Q. It would be useful to see the impacts that each PCO has on other thresholds.

A. That is the information that we are seeking from you all today.

Q. What are we doing about PCOs that are not measurable but that everyone knows we need to be doing to reduce the pollutant load? How do we take these into account?

A. We are hoping to receive feedback from you about that. We will try to help you get credit for taking those actions especially if they help gain social acceptability for the program. Also, remember that this is an iterative process and we will constantly be getting more information.

Q. Have you factored in the negative tradeoffs of installing riprap for water quality purposes?

A. Our analysis did not look at effects on other thresholds; we were focusing on fine sediment removal. We will support the efforts of the implementing agencies on this.

Q. Does stream channel restoration mean rewatering meadows?

A. Sometimes, yes. In many cases restoring portions of the channel will result in increased overbank frequency. However, our work was focused on stream channel restoration only.

Mike Bradford presented a letter addressed to John Singlaub and TRPA regarding the future use of the Forum to address the Pathway agencies' management plans. He requested that John Singlaub respond to the Forum regarding future collaborative efforts of the group.

Christine thanked Steve Teshara (North Lake Tahoe Resort Association) and Jennifer Merchant (Placer County) for sponsoring lunch for Forum members.

DISCUSS WAYS OF PACKAGING POLLUTANT CONTROL OPPORTUNITIES

Anna West (Kearns & West) asked the Forum to provide feedback in response to four questions:

- 1) What new or different package approaches can you suggest?
- 2) What are the strengths, weaknesses, benefits, and tradeoffs of the illustrative scenarios?
- 3) What is the social, technical, financial feasibility of reaching the Clarity Challenge?
- 4) What input do you have on individual PCOs?

Please note: For the following comments, those that are *italicized* represent comments from non-Forum members.

Forum Feedback on Illustrative Scenarios

CATEGORY	COMMENT
Scenario A	Scenario A would be the best approach from a marketing standpoint since it builds off what people know. After we do some pilot projects we can move to more creative approaches such as Scenarios B and C.
Scenario A	Scenario A: California Tahoe Conservancy projects underway – need to complete current activities before retrofitting.
Scenario B	Support Scenario B with an eye towards moving to Scenario C in the long term.
Scenario B	Scenario B is good because of its value and applicability for achieving 100 feet of clarity.
Scenario B	Support Scenario B due to issues of technical feasibility/proven technologies.
Scenario B	Scenario B represents a cautious approach to test technology prior to investing lots of money.
Scenario B	Least cost is most important. Prefer Scenario B with its potential for long-term gains.
<i>Scenario B</i>	<i>Scenario B still has a lot of uncertainty with the outcome.</i>
<i>Scenario B</i>	<i>Scenario B may be more publicly feasible since it is not depending upon public to do BMPs.</i>
Scenario B	Like scenario B – why “ask” short? Don’t ask for less than you need – say “Here is what we need to make the clarity challenge.”
Scenario B, Scenario C	Prefer the “all-out push” scenario because it allows for a greater margin of error when trying to reach the Clarity Challenge. However, if there are unproven technologies in Scenario C, consider pulling in some aspects of Scenario B so that we do not rely entirely on one application that might not succeed. What would it cost to add more Scenario B items to Scenario C so we do not put all our eggs in the pump and treat basket?
Scenario B, Scenario C	Consider a stormwater utility district as a component of Scenarios B and C (specifically to pay for maintenance).
Scenario C	It looks like we have the correct locations for implementing pump and treat (i.e., areas where it would be difficult to implement private BMPs).
Scenario C	Use pump and treat feasibility study to evaluate Scenario C.
Scenario C	Push to Scenario C – if we don’t get there we will be closer to improving clarity. This is about preserving (restoring) the water quality and clarity so we should not cut our efforts short but should do as much as we can.
Scenario C	Scenario C has some “safety” margin built in if we fall a bit short.
<i>Scenario C</i>	<i>Scenario C may be the best option for first clarity challenge. It’s only \$20M more but the gain is greater.</i>
<i>Scenario C</i>	<i>We already have 15-20 projects that are slated for construction between now and 2010. Those projects likely fall under Scenarios A and B, so we should start putting more efforts to elements of Scenario C.</i>
<i>Scenario C</i>	<i>Scenario C is good -- go big because we may make it.</i>
Transportation	Consider including transportation in these scenarios because it tends to attract funding and public support.
Transportation	Consider including transportation because it has corollary benefits aside from water quality improvements.

Transportation	Need to include VMT in a package because it is important for other thresholds.
Certainty	Concerned with understanding the certainty of achieving the clarity gains proposed for each scenario. We will support whatever the scientists and implementers think will get us the most gain.
Certainty	Include PCOs with high confidence (e.g. P&T) but also address areas of low confidence (e.g. VMT).
Cost/ Incentives	We should use tiered fees based on contribution to a pollutant budget (transport).
Cost/ Incentives	Possibly transition, with/through incentives, from one scenario to the next -> have flexibility.
Cost/ Incentives	Any scenario should be incentive-based.
Cost/ Incentives	Optimize PCOs for cost (provide scenario for EIS).
Program Success	We need to ensure that this program comes with equivalent support, accountability, and enforcement from all areas within the Basin.
Program Success	How much effort will these scenarios take on the part of agencies to enforce? We need to consider this.
Program Success	Consider opportunities that do not involve a change in social behavior, as that takes time to accomplish. Those items that do not involve social behavior should be pursued or implemented first.
Program Success	Pay it forward now to set up for beyond 2027.
Program Success	Ensure that the scenarios contain components that can result in clarity gains early on and do not rely on technologies that will take 10-20 years to develop. The public will need to see gains early on to continue supporting the program.
Program Success	We need to think through the implementation team (all levels of agencies to citizens) to determine if a scenario can succeed.
<i>Program Success</i>	<i>How long can we anticipate any one scenario can last and maintain its value? (i.e. Scenario A). Understand that certain scenarios or PCOs will ultimately require replacement over time. It's not just 20 years, it's forever.</i>
Other	Consider having BMPs as the first line of defense, but then having stormwater or subwatershed collection retention and treatment to assist in water quality improvements.
Other	Although forest and stream channels have less of an impact on the Lake clarity they are very visible to Tahoe residents and visitors. Improvements to those sources will help secure public buy-in.
Other	Decentralized micro-treatment opportunity would be a good way to mix and match packages.
Other	Integrate clarity measures with other programs/thresholds to achieve greatest bang for buck.
Other	Lean toward innovation, history shows it will be to good end; insert "creative breakthroughs" into timeline.
<i>Other</i>	<i>How to plan if one thing makes another obsolete?</i>

Forum Feedback on New Suggested Scenarios

CATEGORY	COMMENT
New Scenario	Consider an “undevelopment” package that pursues funding to remove vacant parcels to increase coverage.
New Scenario	Consider how the place-based planning efforts coincide with the scenarios provided. Some of those ideas included creating a higher density downtown, removing impervious coverage, having people live where they work, and reducing VMT. Can we create a scenario that takes these into account?
New Scenario	Select Scenario A, but include pilot pump and treat and other innovative PCOs... “Plan 4 Pump?”
New Scenario	Would like to see a scenario with everything that is working now (bumped up, full effort). Try pilots, etc., and look to apply from there (be realistic).
New Scenario	New scenario – compliance with everything already on the books.
New Scenario	Consider a scenario which includes a transportation plan or PCOs: it will help to support collateral benefits to achieve other thresholds. It does not need to be limited to transport (may include P&T, etc.). You can take things that are in other scenarios and craft them in terms of transportation – calculate emissions per person, per mile – to get to the individual responsibility for encouraging action. A transportation scenario is more compelling when it comes to raising funds.
Addition to Scenarios	Consider stormwater export.

Forum Feedback on PCOs

CATEGORY	COMMENT
BMPs	Private BMPs: 100% implementation an unreasonable assumption due to site constraints.
BMPs	We question residential BMP effectiveness.
BMPs	The positive impacts/effectiveness of BMPs should be publicized (if collectively implemented). We need to provide incentives/enforcement – site assessment is a big one.
BMPs	“What you respect is what you inspect” – tie BMPs compliance to defensible space, insurance, etc.
BMPs	BMP maintenance: need registered district to incentivize.
BMPs	Ways to grade costs based on individual BMPs in practice?
BMPs	People would rather pay long term into public system than put down a bunch of cash for private BMPs.
<i>BMPs</i>	<i>Biggest question is the feasibility/effectiveness of BMPs (commercial/private).</i>
<i>BMPs</i>	<i>Feasibility of “install and maintain” as a continuation of what we’ve been doing.</i>
<i>BMPs</i>	<i>Give BMP certifications for communities who join a stormwater utility district.</i>

<i>BMPs</i>	<i>We need to consider the success of programs such as BMPs that have not had great success in implementation so far. There is a danger in assuming the feasibility of 50% or 100% implementation of BMPs if we have only achieved 18% so far.</i>
<i>BMPs</i>	<i>We need a way to encourage people to maintain their BMPs. Currently there is no accountability for maintenance. Could we get people to pay into a regional system if they do not complete their BMPs?</i>
<i>BMPs</i>	<i>If you can provide incentives through stormwater maintenance fees and lower the fees for those who have implemented and maintained their BMPs it might encourage broader implementation.</i>
<i>BMPs</i>	<i>BMP becomes a utility to O&M the system rather than “bank on” public to do the right thing. We need proper oversight.</i>
<i>BMPs</i>	<i>“High,” “increased” BMP installation is not equivalent to current ordinance of 100%. What is reality/feasibility, what’s the effectiveness (i.e. high water tables, rapid/slow soils, etc.)? No specific target identified.</i>
<i>BMPs</i>	<i>Has the business district been approached re: doing BMPs or paying a fee?</i>
<i>BMPs, pump and treat</i>	<i>We should weigh the cost of implementing and maintaining and enforcing private BMPs vs. investing in pump and treat. We should also consider site restraints.</i>
<i>BMPs, pump and treat</i>	<i>Is it socially easier to pay a utility tax for pump and treat than to install own BMPs?</i>
<i>BMPs, pump and treat</i>	<i>Is there a BMP / P&T tradeoff? That is, are there redundancies in these?</i>
<i>Pump and treat</i>	<i>Pump & treat is fine as a PCO but we should test it further before putting too much emphasis on it. We should utilize the existing infrastructure and look into localizing efforts over regionalizing efforts.</i>
<i>Pump and treat</i>	<i>Introduce pump and treat slowly until more “proven”. Consider the social implementation – will people accept treatment plant next door? Consider the potential negative effect on other thresholds/resource areas.</i>
<i>Pump and treat</i>	<i>Consider stormwater fees as a way to pay for pump and treat.</i>
<i>Pump and treat</i>	<i>Consider public funding for pump and treat.</i>
<i>Pump and treat</i>	<i>Pump and treat should be piloted.</i>
<i>Pump and treat</i>	<i>Pump and treat plants are scenically bad; also bad if smelly, noisy.</i>
<i>Pump and treat</i>	<i>Be realistic about the time it will take to get pump and treat underway.</i>
<i>Pump and treat</i>	<i>Pump and treat is fine as a PCO to consider but we need to know more.</i>
<i>Pump and treat</i>	<i>Concern about cost assessed to individuals to install pump and treat.</i>
<i>Pump and treat</i>	<i>Pump and treat – if you’ve got to do it, you’ve got to do it.</i>
<i>Pump and treat</i>	<i>Better to invest in pump and treat than always coming back year after year to redo BMPs.</i>
<i>Pump and treat</i>	<i>Pump and treat poses constraint with private property (instead of assessment district area-wide?).</i>
<i>Pump and treat</i>	<i>Feasibility on pump and treat compared to other options?</i>

RWC	Reducing emissions from residential wood combustion (RWC), since the public associates these stoves with the “Tahoe experience,” will likely meet resistance. Since we will not see a lot of pollutant load reduction from RWC we do not think it makes sense to expend energy pushing this solution. However, considering rebates to incentivize purchase of clean burning stoves makes sense.
RWC	We should educate people about air quality control burn days as a PCO.
RWC	Residential wood combustion is not a good PCO because it provides too little gain for the trouble. It is a health and safety issue. We should just focus on incentives (rebates and EPA compliant stoves). We should use education as a PCO for raising awareness about good / bad times for wood stove use.
RWC	Consider using fuels piles that will be burned anyway as sources for RWC; this will reduce the purchase of outside sources of fuel.
RWC	Don’t mess with residential wood combustion – too little gain for the price you will pay with the public.
RWC	RWC – must have incentive program for replacement or upgrade.
Sweeping	Street sweeping is fine as a PCO, but make sure that the frequency and effort are fine-tuned for maximum effectiveness and least nuisance. Street sweeping needs regional effectiveness measuring / adjusting.
Sweeping	Positive PCOs include street sweeping and leaf vacuums/suckers.
Sweeping	Street sweeping should be done, it is done elsewhere in the nation.
Transportation	There is an issue with road shoulder stabilization vs. parking and safety.
Transportation	VMT is an out-dated way of looking at transportation. We should not de-emphasize transportation efforts but it is fine to let VMT specifically go. We should use less salt and sand and look into other favorable alternatives.
Transportation	More research needs to be done to convince that VMT effect on re-entrained dust is minimal.
Transportation	Consider fees for polluting vehicles.
Transportation	Transportation: maintain safety but look to alternatives to road sanding.
Transportation	Mixed (conflicting) message to say “pave unpaved roads” and “reduce VMTs” – because it raises questions about increased accessibility.
Transportation	We should research the trade-offs (pollutants and load reductions) associated with different fuel types.
Transportation	<i>More talk re: porous/or other pavement technologies.</i>
Transportation	<i>Paving/graveling portions of dirt roads.</i>
General	Focus on PCOs that will not necessarily require social change (or a high degree): “easy sell.” Add social change elements over time as it will take a while for this to happen.
General	Consider putting the burden on those who wish to develop land. We considered creating incentives such as allowing construction of an additional storey if developers are willing to conduct greater stormwater treatment activities.
General	Consider focusing on PCOs that are not particularly contentious and do not put the burden on the individual; this will help secure buy-in for these efforts.
General	Flow splitting: land-use, stormwater treatment.
General	Need to identify other costs/benefits (consequences) even if not quantifiable.
General	It’s better to encourage behavioral change (personal, decentralized action vs. big projects) than provide technical fix.

General	Need to educate about consequences of failure. 1,000 teacups vs. one large detention basin.
General	Negative PCOs are those that can't be measured.
General	Upper Truckee River – good opportunity to pilot?

Forum Feedback on Other Topics

CATEGORY	COMMENT
Costs	We will need to make serious capital investments in these projects, which likely will require agency support to successfully borrow money for such capital-intensive projects. We will need some sort of unified lake clarity entity or regional stormwater management districts.
Costs	We discussed whether costs should be allocated to property owners (resident or not) and whether costs can be distributed to visitors and other stakeholders. This needs to be looked at for any approach that is taken.
Costs	Consider creating stormwater management districts to help pay for water quality improvements.
Costs	Ask for as much money as we think we can get in order to reach our clarity goals.
Costs	We must have a plan for a local source of revenue.
Costs	How do you sell spending billions of dollars to increase clarity by seven feet?
Costs	Provide context – relate the 2030 ask to the 1990 – 2010 amount actually spent.
Costs	Make sure cost distribution is equitable and can be handled.
Costs	Urban areas, already incorporated, will have an easier time handling large up-front capital costs (e.g. pump and treat).
Costs	Issue with short-term up-front cost (i.e., incremental vs. lump sum).
Costs	<i>Compare our tax, potential tax to other areas of the country.</i>
Costs	<i>We need to make sure that monitoring costs are factored into the equation.</i>
Costs	<i>A fed/state rule that limits the amount of tax/assessment placed on the public (2.5% for water rate) when you add all the taxes – there's a breaking point</i>
Cost-Effectiveness	Focus on most cost-effective areas, watersheds.
Cost-Effectiveness	Prioritize to cost benefit.
Cost-Effectiveness	Target best bang for the buck in each source.
Messaging	Need to focus on public education to let everyone know <i>why</i> we need to make this commitment.
Messaging	Consider how you will have to market these PCOs and strategies to agencies and the communities. We need a careful approach that will ensure buy-in.
Messaging	Messaging: scenarios need to include an educational component that will involve selling/marketing. There is the perception is that public is skeptical about agencies implementing what they said or the burden will fall on them.
Messaging	Be careful with messaging – Don't give impression "we don't care about anything but water clarity."
Messaging	Put messages in positive light to fuel energy and innovation, (even unintended

	consequences are likely to be positive).
Messaging	How do we sell the “best” scenario to everyone?
Innovation	We should consider whether focusing on the technologies known today will get us where we need to go. Perhaps focusing on innovative scientific approaches will allow us to reach our clarity goals, even if it takes a little longer to perfect the technology and see the gains.
<i>Innovation</i>	<i>Consider encouraging companies that want to test or donate projects to work in the Tahoe basin to help us reach success with Scenario B.</i>
<i>Innovation</i>	<i>We should create a fund, based on a percentage of erosion control dollars, which is applied towards testing new technologies to improve water quality.</i>
Program planning	Need interim goals to track progress.
Program planning	Move from stick to carrot...If we are going to ask folks to change behavior, make it more incentive-based and focus on education.
Program planning	We should document the costs and benefits of the strategies, including social aspects.
Program planning	Invest in effectiveness and best chance of success.
Program planning	Demonstrate progress.
Program planning	Need to include adaptability in TMDL to account for changed conditions, both environmental and technological.
Program planning	Want to focus on whatever efforts the scientists are the most confident in the estimates that get the best results.
<i>Program planning</i>	<i>Continuation considered... in terms of timeframe. Compare to date with vs. long term.</i>
<i>Program planning</i>	<i>All need to consider the social impacts.</i>
<i>Program planning</i>	<i>What’s the most feasible timeframe?</i>
Responsibility	Increase emphasis on government action (as opposed to individual action). Consumer action seems least likely to make a difference.
Responsibility	Will regulations to reduce loads be basin-wide or to individual areas, or both?
Responsibility	Ensure representative commitment, vision, goal basin-wide <i>and</i> by local entity.
Responsibility	Easier to control regulatory agency than 50,000 homeowners.
<i>Responsibility</i>	<i>Private enterprise for private control options to take over some work (with government oversight).</i>
<i>Responsibility</i>	<i>Stormwater management district – MOU; may be able to control variability of all the players.</i>
<i>Responsibility</i>	<i>Need a sense of full participation, private, fed, state, local.</i>
Other	Focus on Upper Truckee River area – set up incremental goals.
Other	Consider that some areas (such as Kings Beach) already have water quality improvement projects in the works. Getting public acceptance for something like a pump and treat project at this point for that area would be tough, since we are already heading down a path and have already invested millions of dollars in our current project.

Other	Streams and forest upland have potentially the greatest link/effect on other thresholds. We should highlight the collateral benefits. These are areas of public visibility. Given current warming climate change trend, stream restoration importance increases.
Other	Concern that water quality will hijack EIP: need to do habitat and other projects.
Other	<i>Curious to see what would happen if we followed the PBP?</i>
Other	<i>Renewed emphasis from CALTRANS on roadway de-icing.</i>

Anna West distributed worksheets provided to the Forum and general public to capture additional feedback on illustrative scenarios and PCOs. Anna encouraged everyone to fill out the worksheets and submit additional input to the TMDL team or Kearns & West.

ACTION ITEM:

Kearns & West will email the TMDL Feedback Worksheet to Forum members to allow for electronic submissions.

DISCUSSION SUMMARY

Harold Singer thanked the Forum members for providing input on scenarios and PCOs and noted that the feedback received so far has been quite useful. He encouraged everyone to continue the dialogue and consider this meeting the initiation of dialogue about PCOs and strategies. Harold noted that he did not hear any comment today that the Clarity Challenge is not achievable, and he is excited to hear conceptual support for the Clarity Challenge.

UPDATE ON TRPA AND TMDL DOCUMENT TIMING

Lauri Kemper (Lahontan) noted that the TMDL team would like to receive additional feedback as soon as possible so that the input can inform the December 6th Forum meeting. The consultant team will be drafting a final summary document cataloguing the comments received which will be used to develop the TMDL implementation plan and to craft alternatives. The TMDL agencies will work closely with TRPA staff to ensure that the ideas and information for the strategies will be worked into the Regional Plan and Regional Plan EIS. The TMDL team will draft the TMDL implementation plan throughout the winter; the plan should be finished in the spring or summer of 2008. The plan will be externally peer reviewed by fall 2008 in time for the Governing Board's decision in October 2008.

John Singlaub (TRPA) explained that the Regional Plan must be submitted to the Governing Board in late October 2008 for approval. The scoping for the Regional Plan EIS is concluding and the scoping report will be brought to the Governing Board on November 28, 2007. That scoping report will include several of the scenarios created today so that there are a range of implementation strategies to analyze for the EIS. The scenarios will be wrapped in with other thresholds and will include regulatory, incentive-based, and capital expenditures, as well as land use and transportation decisions, as approaches to get the clarity results. TRPA is working in parallel with Lahontan and NDEP which is not ideal but is the best way to handle the situation considering the firm deadline.

The key message is that the work the Forum has been doing will be built into the recommendation to Lahontan and NDEP.

Q. Are we reconstituting the Forum for additional meetings beyond the TMDL series?

A. In February we will have another Forum meeting relating to the TMDL. That meeting can also include an update on where TRPA is headed. There is not currently funding for the Forum in FY08 so the use of the Forum as an advisory group to the Regional Plan is in question.

Lauri Kemper clarified that as part of the TMDL there will be a monitoring program and management system and funding is available for this work. TRPA is currently working on a management system framework and implementation protocols. Conversations regarding allocations for load reductions and how this will affect individual areas will begin in November. Lahontan hopes to have this on the Tahoe Interagency Executives meeting agenda in December. Lahontan will report on where that effort is headed at the February Forum meeting.

Michelle Sweeney (Allegro Communications) thanked the Focus Team members for participating in planning for this Forum meeting and for attending the Forum meeting. Anna West thanked the Forum for attending and participating in the meeting and thanked the TMDL team for presenting the extensive scientific knowledge collected thus far.

Next meeting:

The next Forum meeting will be held on Thursday, December 6th at the Lake Tahoe Community College, from 8:30am to 4:30pm.

To review Forum materials, including presentations from this meeting, please go to:

<http://www.PATHWAY2007.org/>

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