

TAHOE REGIONAL PLANNING AGENCY  
GOVERNING BOARD

GoToWebinar

October 27, 2021

**Meeting Minutes**

I. CALL TO ORDER AND DETERMINATION OF QUORUM

Vice Chair Ms. Gustafson called the meeting to order at 12:00 p.m.

Members present: Ms. Aldean, Mr. Bruce, Mrs. Cegavske, Ms. Faustinos, Mr. Friedrich, Ms. Gustafson, Mr. Hicks, Ms. Hill, Ms. Novasel, Mr. Rice, Ms. Williamson, Mr. Yeates

Members absent: Mr. Lawrence

II. PLEDGE OF ALLEGIANCE

Ms. Hangeland led the pledge.

III. APPROVAL OF AGENDA

Ms. Regan stated no changes to the agenda.

Ms. Gustafson deemed the agenda approved as posted.

IV. APPROVAL OF MINUTES

- 1) August 25, 2021
- 2) September 22, 2021

Ms. Aldean will provide her minor clerical edits to Ms. Ambler for the August 25, 2021 minutes.

Ms. Faustinos moved approval of the August 25, 2021 minutes as amended and the September 22, 2021 minutes as presented.

**Motion carried.**

V. TRPA CONSENT CALENDAR

1. September Financials
2. California Tahoe Conservancy Land Bank Administrative Fee and Memorandum of Understanding Update
3. Release of Excess Coverage Mitigation Funds (\$35,000) to the California Tahoe Conservancy for the acquisition of an environmentally sensitive parcel, at 1450 Boca Raton Drive in El Dorado County
4. Natural Grocers Commercial Redevelopment Project 869 & 873 Tahoe Boulevard, Washoe County, Nevada Assessor's Parcel Numbers 132-240-20 (formerly 132-240-02) and 132-240-21 (formerly 132-240-03) TRPA File Number ERSP2021-0546

Ms. Aldean said the Operations and Governance Committee recommended approval of items one, two, and three. The committee reviewed the September financials and there was nothing out of the ordinary to report. They also reviewed an update to the Memorandum of Understanding between TRPA and the California Conservancy having to do with all the administrative fee that they charge. The fee was raised from 12 to 18 percent to be consistent with the MOU with the Nevada Division of State Lands. Item number three was the release of excess coverage mitigation funds in the amount of \$35,000 for the acquisition of an environmentally sensitive parcel and El Dorado County.

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Board Comments & Questions

None.

Public Comments & Questions

None.

Mr. Yeates moved approval of the consent calendar.

Ayes: Ms. Aldean, Mr. Bruce, Mrs. Cegavske, Ms. Faustinos, Mr. Friedrich, Ms. Gustafson, Ms. Hill, Ms. Novasel, Mr. Rice, Ms. Williamson, Mr. Yeates

Absent: Mr. Lawrence

**Motion carried.**

Ms. Aldean moved to adjourn as the TRPA and convene as the TMPO .

VI. TAHOE METROPOLITAN PLANNING ORGANIZATION CONSENT CALENDAR

1. Amendment No.1 of the FY 2022 Transportation Overall Work Program

Ms. Aldean said the Operations and Governance Committee recommended approval of item one. There was a reduction in the amount of about \$1,670 in one of the grants. And there was an increase in the amount of \$263 in connection with one of the work Plan elements. Staff assures them that there will be no impacts on staff's ability to effectively implement the overall work program based on these changes.

Board Comments & Questions

None.

Public Comments & Questions

None.

Ms. Aldean moved approval of the consent calendar.

Ayes: Members present: Ms. Aldean, Mr. Bruce, Mrs. Cegavske, Ms. Faustinos, Mr. Friedrich, Ms. Gustafson, Ms. Hill, Ms. Novasel, Mr. Rice, Ms. Williamson, Mr. Yeates

Absent: Mr. Lawrence

**Motion carried.**

Mr. Yeates moved to adjourn as the TMPO and reconvene as the TRPA.

VII. PLANNING MATTERS

A. Round Hill Pines Resort Highway Intersection Improvements, TRPA File No. EIPC2021-0012

Ms. Williamson recused herself for this item. The board received a comment letter last night from the law firm Alling & Jillson who her husband is employed by.

Ms. Friedman provided the presentation.

Ms. Friedman said the Round Hill Pines Resort Intersection Improvement Project was identified as a priority Environmental Improvement Program project because the current intersection into the resort is unsafe.

It has limited sight distance into and out of the resort and does not meet the Nevada Department of Transportation's sight distance requirements for intersections. There are also unprotected

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turning movements into and out of the resort presenting a very unsafe intersection for this popular recreation destination in South Lake Tahoe. For those reasons it was identified as an Environmental Improvement Program project to improve access to recreation facilities and to Lake Tahoe. In addition, it received federal funding through the Federal Lands Access Program to implement the project.

The proposed project will relocate the entrance 0.2 miles to the north of the existing entrance. It will include a northbound median left turn lane into the resort and the northbound acceleration lane out of the resort. This intersection will tie into improvements that the Forest Service is planning inside Round Hill Pines Resort. The existing entrance road is very steep, narrow, does not have best management practices, and is not up to modern design standards.

This project will tie in to those improvements and will result in an overall improvement to this recreation facility. These improvements also allow for transit to enter into the resort which the existing intersection and entrance does not allow for. Allowing transit to get into this resort is going to become more important as they see recreation increase in Lake Tahoe.

In July, the board was able to see this area during their board retreat at Round Hill Pines. They saw firsthand the need for the improvements at the resort and the relocation of this intersection. The project requires Governing Board approval because it will increase coverage by 0.6 acres. This new coverage is attributed to widening of the roadway to allow for that acceleration lane, the left-hand turn lane, and wider entrance road into the resort.

The project will also need to remove 118 trees that are greater than 14 inches in diameter and breast height over the 8.9 acre project area. Throughout the planning of this project, all of the project partners worked to reduce the impacts that this project has to coverage and disturbance in tree removal while still meeting the purpose and need of the project. The result is a project that minimizes impacts while still providing that safe access to recreation.

The project partners had several public meetings to gather public input. In April of 2019, they held an in person scoping meeting, about the project, and then in September of 2019, they had another in person meeting, to go over the proposed alternatives to the project. These meetings were well attended and the general feedback from the public was in support of the project recognizing that there was definitely a need to improve this intersection. A lot of the comments were about the US 50 corridor as a whole and the need for safety improvements along this corridor. The environmental impacts to the project were analyzed under a joint environmental assessment. The Federal Highways Central Federal Lands Highway Division was the lead on the Environmental Assessment which was the joint National Environmental Policy Act (NEPA) and TRPA. That document was released in May of 2021 and had a 30 day public review period. All of the comments received during that period were reviewed, and adjustments were made in the environmental assessment to address those comments. The environmental assessment found that there were no significant impacts to the proposed project, and a finding of no significant impact (FONSI) was signed on October 1, 2021.

Presentation can be found at:

[Agenda-Item-No.-VI.A-Round-Hill-Pines-Highway-Intersection-Improvementspdf.pdf](#)

### Board Comments & Questions

Mr. Yeates asked how the new entrance would affect the existing acceleration lane out of the Sierra Sunset Estate area. It's somewhat of a legal issue as to whether it was appropriate or not to have done a traffic impact analysis. The staff report indicated that there had been comments received from the Sierra Sunset Estate representative and is not sure if that's ever been resolved.

Ms. Friedman said the residents of Sierra Sunset Estates have been involved in this project and have attended public meetings and also had meetings with Central Federal Lands Highway Division to discuss the project and concerns With that proposed relocation of the resort. They did provide a similar comment on the Draft Environmental Assessment. In response to that the Nevada Department of Transportation did additional analysis that is addressed in Appendix A, which is that memo to Sierra Sunset Lane about the impacts that this intersection would have on their entrance into their neighborhood. They found that the sight distance was appropriate and that given the

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distance between this resort entrance and that entrance there wouldn't be an impact to their intersection. Based on the letter they received yesterday, it sounds like they still don't agree with that. They did reach out to them prior to this meeting to discuss this along with the finding of no significant impact (FONSI) and haven't had an opportunity to talk with them in detail about. There was not a detailed traffic study done as part of this project. The Central Federal Lands Highway Division, the Nevada Department of Transportation, and TRPA did not feel that at the time the project warranted that traffic analysis.

Mr. Marshall asked Mr. Gabor with the Forest Service about their position on the adequacy of the analysis regarding the turn movements coming in and out of the residential drive.

Mr. Gabor, Forest Service said there were initial studies done by the Nevada Department of Transportation regarding the safety in the Highway 50 corridor and they knew long before that was done that the entrance was of concern. When their staff goes to the resort, they go past it and turn around at a safer intersection and come back to it. As far as the design for the highway itself and entrance, the request was to make a safe intersection.

The criteria wasn't so much what they were going to do on the highway to achieve that as, just using their standards to get to that result. From discussions with them they've met that criteria to provide that safer intersection. The current entrance does not enable them to reach that level of a safe entrance, given the sight distance issues. They've optimized that location and the Forest Service did their work internally to match up to the Central Federal Highways work and feels they did their due diligence.

Mr. Marshall said he was referring to the Sierra Sunset Lane intersection to the north.

Mr. Gabor said it's his understanding that it's not actually an acceleration lane. That it is an abbreviated driveway and is not a full acceleration lane and the Round Hill Pines Resort entrance was not going to be in conflict with the Sierra Sunset Lane driveway approach. He also believes that Federal Highway's is also on and could comment more specifically on that analysis.

Mr. Mathis, Central Federal Lands said as far as the comments from Mr. Gabor on whether the project impacts Sierra Sunset Lane, the area described as an acceleration lane, there is a slight impact to that. In coordination with others this is a non-standard approach and not considered acceleration and deceleration lanes.

Mr. Marshall said he understands that the Forest Service and Federal Highways has concluded that through the analysis there is no impact to the safety associated with turn movements coming out of that residential drive. Is that accurate?

Mr. Mathis, Central Federal Lands said yes, that was their conclusion in Appendix B shown in the findings of no significant impact (FONSI).

Mr. Marshall asked for an explanation of rationale for that.

Mr. Mathis, Central Federal Lands said they looked at the sight distance for those exiting Sierra Sunset Lane and that sight distance was impacted to a negligible degree. Based on their proposed design they are not changing the usage of both the access road and the Sierra Sunset Lane and not changing any volumes based on their project and there'll be no changes and turning movements as well.

### Public Comments & Questions

Richard McGuffin, Alling & Jillson representing the property owners immediately adjacent to Round Hill Pines. Ms. Friedman mentioned that she had attempted to contact the owners of Sierra Sunset Lane, at 530, 540, 550, 560. No one from TRPA has reached out to discuss this project with him or anybody at their office and they've long been on record as the representative. Regarding the letter that was sent to the board last night, to emphasize one thing in Mr. Mathis' Appendix B which was attached to the finding of no significant impact. He mentioned that no traffic study was required because none of the requirements that would mandate a traffic study where applicable to the Sierra Sunset Lane specifically. He feels that a traffic study is required based on the Nevada

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Department of Transportation terms and conditions relating to a right-of-way occupancy permit. As they apply to the proposed change of access for Round Hill Pines Resort, it specifically says in Appendix H, page four states that if the usage of a previously permitted access point changes significantly, a new traffic study will be required. That's the one thing that's missing here. They've done an environmental analysis and come up with their finding of no significant impact, but they came up with that finding without doing a traffic study. They are moving this particular access point closer to an already existing access point. Round Hill Pines is incredibly busy during the summer months and there's a significant amount of vehicle queuing. His clients as they enter and exit, their property are now going to have to deal with a tremendous amount of vehicle queuing and traffic as they enter and exit their properties. It's dangerous for them and other vehicles on Highway 50. As Ms. Friedman said at the outset, it was a priority, because the current intersection is unsafe. So what we're doing to remedy that current unsafe intersection is we're creating another intersection that is potentially more unsafe as vehicles from two adjacent access points are entering and exiting Highway 50.

Out of Sierra Sunset Lane if you're turning left (north) onto Highway 50 it has a limited sight distance. Mr. Mathis points out in the Appendix that it's 440 feet. If they are turning right, then they're dealing with vehicle queuing and other impediments to accessing Highway 50. The chances of further vehicular collisions on Highway 50 are only going to be increased by the new proposed access point. It is imperative that before any further permits are approved for this project that there is a traffic study to indicate whether or not their assumptions are true or the assumptions that NDOT and Federal Highways are making are accurate. They shouldn't move forward on a project that is premised on safety unless we know it's going to be a safe project.

Steve Teshara, Sustainable Community Advocates said he has been following the evolution of this project since the very beginning with site meetings with the Nevada Department of Transportation, the Forest Service and the concessionaire for the Forest Service, Mr. Hassett. This is definitely dealing with a very unsafe situation at the top of the hill where there is no sight distance whatsoever. NDOT has statistics on the crashes and other safety issues in that area. He encouraged the Governing Board to move forward and approve this project, it's long overdue and is part of the needed improvements along the Highway 50 corridor. There's also a traffic signal coming to Warrior Way and US Highway 50 in the Zephyr Cove resort area. NDOT, TRPA, the Tahoe Transportation District, and others are working on an overall safety plan for the US. 50 Corridor from Spooner Summit down to Stateline, He encouraged approval of the project today without further delay.

Devin Cartwright, Nevada Department of Transportation said they are one of the partners on this project and they have worked tirelessly with TRPA, the Forest Service, and the Federal Highways Administration to try and provide a safer entrance into the Round Hill Pines Resort. Not only one that provides sight distance but one that alleviates some of the backups that were seen previously on US 50. The existing entrance into Round Hill Pines is a single lane road that really becomes a problem for ingress and egress when there's opposing traffic stuck on the same single lane road. This new entrance should alleviate a lot of the backup on the highway, if not fully eliminate it. Their opinion of the department and their engineering judgement is that this project will provide a much safer entrance for users and are in full support of the project.

Julie Chaiken, Sierra Sunset Lane resident said while she understands that this has been looked at from many directions, it has not been looked at from the concern of the neighboring driveway. They keep saying there's a problem but not getting listened to. Round Hill Pines density in the summer has greatly increased over the past few years. The current parking lot project is more than doubling the number of parking spots that will be available within the park and there are already lines getting in and out of the property that block traffic especially on holiday weekends in the summer. Unless the capacity at the park has some limitations, she doesn't see how allowing this driveway and increasing the access without limitation on parking along the old driveway or along the highway will alleviate any of the traffic patterns. That's asking for more trouble and they're looking at a situation with their driveway not being accessible on a regular basis.

### Board Comments & Questions

Ms. Aldean said this is a wonderful project and public safety is a huge concern but she's also concerned about shifting a problem. It may benefit many, but at the expense of a few. The people

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that have been there for a while are equally concerned about their safety. She doesn't have an answer to the question of whether or not these proposed improvements are going to reduce the length of the stacking that might be beneficial to the neighbors next door. She asked how the project timeline would be affected if a traffic study was commissioned to satisfy the concerns of these private property owners.

Ms. Friedman said the project is planned to be constructed over one season starting in the 2022 construction season. Depending on the funding availability and how quickly a traffic study or analysis could be done it could potentially push the implementation of the project. Mr. Mathis, would it have the potential to push it out beyond 2022 implementation?

Mr. Mathis, Central Federal Lands Highway Division said yes, he feels it would push this out at least into the next construction season.

Ms. Aldean said if the Governing Board approved the project today to enable the timeline to be met, is there any way to get a commitment from the parties to mitigate any negative impacts that might be imposed on the adjacent property owners after the project is complete? They may be improving safety for members of the public but diminishing the safety or other members of the public who are located nearby. It's important that they all work cooperatively in enhancing public safety in every aspect, as it affects both private property owners and the public in general.

Ms. Regan wanted to underscore the point that Mr. Teshara shared in his public comment, that this project exists within the overall corridor which has the potential of improving safety. She'll commit TRPA to work collaboratively with the project applicant, Federal Highways, the Nevada Department of Transportation, and adjacent property owners. This is just one piece of an overall master plan for the entire facility at Round Hill Pines. There'll be a lot of opportunities to examine the corridor, safety, and then safety beyond immediate intersection.

Mr. Marshall said a quick review of the record may put us at a little bit of a conflict. That is what they have on the record so far and gets to Mr. Yeates' point about whether or not they can make a finding of no significant impact on this on this project with an Environmental Assessment. The engineers from Federal Highways, the Forest Service, and the Nevada Department of Transportation looked at the impact of moving the intersection to the north and that there is sufficient sight distance from the residential driveway to avoid not having to do a traffic study and avoid the impacts in their professional judgements. Onn the other side of that is the letter from an attorney and testimony from one of the residents that are concerned it might impact them. That in it of itself, doesn't necessarily constitute a substantial evidence that there is an impact when you have the project proponents and their technical staff stating that in their opinion, they don't need to do a traffic study in order to come to a conclusion because of the sight distances that there will not be an adverse impact.

The board has the opportunity to condition this permit upon a traffic study and to mitigate any significant safety issues that arise as a result of that traffic study.

Ms. Aldean said that would be her preference. She's not suggesting that these studies were done in anything less than a professional matter but the people doing these studies were doing them on behalf of their organizations that they represent. This is an important project and at the very least after the project is completed if there are some significant detrimental impacts related to safety and usability of an existing entrance onto the freeway, that those impacts should be mitigated. She suggested that this is included as a condition of the permit. And that would be based on an independent analysis by a third party.

Mr. Rice said having worked with the sheriff's department and traveled that stretch of highway for a good number of years, that it is one of the most dangerous areas near Round Hill Pines and Zephyr Cove. The Zephyr Cover is a significant problem and is being dealt with. The Nevada Department of Transportation has done a very good job of reaching out to the public getting input as to what needs to be done, what the problems are, and the resolution to those problems. In his opinion, this project will be a lifesaver and doesn't see how it would have a negative impact on the residents there. It would be a win for them. The people coming up, the hill, looking for places to park all along the highway has been a problem for ages. Having increased parking down there and

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increased availability of getting down there in a safe fashion, is nothing but a win-win for the community, as well as the neighboring properties.

Ms. Gustafson said when they visited the site during the board retreat the queuing issue along the highway and existing driveway was caused by that narrow driveway. She asked if Mr. Gabor with the Forest service could speak to the parking and queuing.

Mr. Gabor, Forest Service said when they issued a new permit to Round Hill, LLC it was based on the existing parking that was occurring on non BMP'd land. The majority of the parking was not occurring on pavement. The project that they're doing internally is to address that and to BMP all the parking. The result is a few less official parking spaces then permitted originally a few years ago. Therefore, the parking is not increasing in the resort. They've seen a substantial increase along the highway and they need to work with the Nevada Department of Transportation and Federal Highways to address that. But, internally in the site they're going to be blocking all of the parking that is not on asphalt. They expect to complete this project early next spring.

Regarding the vehicle queuing, they've taken the approach of not putting in a kiosk, which was kind of an old approach to addressing the public coming in. Instead, they've chosen to go with a more modern system of a central kiosk for parking or an exit machine to pay for the parking in the interest of not creating a queue onto the highway

Mr. Yeates said the highlighted part of the letter troubles him. He appreciated what Mr. Rice had to say because he knows this area much better. Personally, running and biking in that area and dealing with that access point is of concern. He doesn't want to throw a monkey wrench into this project but his concerns as an attorney is that this could be an easy lawsuit to win simply because if in Appendix H it states that if usage of a previously permitted access point changes significantly, a new traffic study will be required. He doesn't know that a judge is going to quibble over about whether the movement of the current access point to another location isn't somewhat of a significant move. If it says a traffic study will be required, the judges aren't making a decision on the project, they're just saying you haven't followed the law. He doesn't want to hold the project up but likes Ms. Aldean's suggestion of a permit condition or some kind of study.

He is concerned about whether this is really ready for approval. If in fact there is a traffic study requirement if you've significantly moved an existing access point. It just doesn't seem like we're ready to make a decision yet until we at least satisfy that requirement. This project is necessary it's just whether the Nevada Department of Transportation and others have then done all that they should have done. He's unsure if he could support this right now because there's fear of litigation.

Mr. Marshall said first to address the Appendix H issue. That condition is not on the movement of point of entry from its current location on the corner downhill to a straighter section. It's really a condition that is very similar to what Ms. Aldean was talking about in that if there's an observation of previously permitted access points that's describing Sierra Sunset Lane. There wasn't a commitment to do a traffic study on this particular change of access. This talks about the one for the resident's concern. They could take this condition and shift it to a mandatory one for that intersection and require mitigation of significant impacts and then they would basically be approving a mitigated finding of no significant impact (FONSI).

Mr. Yeates asked Mr. Marshall if he was suggesting that they do what Ms. Aldean suggested is that there should be some traffic study done on the potential impact of this as a condition of the permit.

Mr. Marshall said yes, the board could do that. There is evidence in the record that is adequate to defend a FONSI based on the work the interested parties have performed and is in Appendix A of the Environmental Assessment. There's been some recent litigation that help defines both from a California Environmental Quality Act (CEQA) National Environmental Policy Act (NEPA) perspective on what evidence constitutes a fair argument. He doesn't feel just the testimony of concern is adequate to rebut the evidence in the record on behalf of Federal Highways, the Nevada Department of Transportation, and the Forest Service.

Mr. Yeates agreed with Mr. Marshall on that. This letter didn't provide any evidence of what happens out of Sierra Sunset. He was concerned about the bold language in this letter that seems

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to suggest that traffic studies should be done. If there was something in there that wouldn't delay the project, but at least get the parties to discuss this issue. He shares Ms. Aldean's concern that they shouldn't pass the problem on down the line. This area does need to be fixed. He would like the Sierra Sunset property owners to be listened to and maybe something can be done to assure them that their access isn't going to be hampered by what they're trying to accomplish for the improvements needed at Round Hill.

Mr. Marshall said there has been significant conversations, they just haven't come to an agreement yet on what exactly they want to be done to their driveway and what the Nevada Department of Transportation and the Forest Service would be willing to do. As indicated in the presentation there was comment to same effect on the Draft Environmental Assessment. There was an attempt to address those comments that the residents just don't feel is adequate.

Ms. Novasel agreed that if this project is approved that the project itself doesn't have those substantial impacts. They've all seen a lot of impacts on the highway from the increase in tourism and there is a concern for anyone that's in these tourist areas. She understands the concerns of the neighbors and they should address it at some level. She doesn't want to see us postpone anything because of the existing safety hazard that needs to be addressed sooner than later. But at the same time, if there's a way to mitigate those impacts by putting a condition that there is going to be mitigation of a traffic study and processes to fix the traffic issue. She would be comfortable with that.

Mr. Friedrich concurred with the sentiment of Ms. Novasel and Mr. Rice. He supported moving forward given the existing safety hazard to many, many, people. He's also fine if there's a creative way to address the concerns of the neighbors through mitigation measures that don't slow down the process.

Mrs. Cegavske shares all the sentiments of her colleagues and supported moving forward.

Ms. Gustafson said safety is the number one priority of Caltrans and the Nevada Department of Transportation (NDOT). The local jurisdictions have to jump through a lot of hurdles to make sure things are safe. If NDOT is comfortable with this project she would tend to defer that way but wants to ask if NDOT's commitment is that this is improving this situation.

Ms. Friedman provided information regarding Mr. McGuffin's comments about the outreach to Sierra Sunset Lane throughout this process. When she stated "they did outreach" it meant the whole project team. When the Finding of no significant impact (FONSI) was released, Central Federal Lands as the lead on the project sent it to Mr. McGuffin as their legal representative and offered to meet regarding the FONSI and the additional analysis that was done. In addition, she sent letters to people that were potentially impacted by the project based on geographical location. That included the individuals of Sierra Sunset Lane and Mr. McGuffin. The notice advised them of this project would be heard for approval at this Governing Board meeting. She also provided her contact information if there were any questions or comments. There was not an individual email from her directly to Mr. McGuffin or those property owners but rather via the letters that they sent to him directly as their representative.

This project is part of the entire US Highway 50 Corridor Management Plan. Everyone knows that the corridor is unsafe and this project area and intersection is up there as one of the most unsafe intersections. The Environmental Assessment study area looked at incidences between 2009 and 2017 and at this location there were nine accidents and more have occurred since then.

As part of the memo that NDOT put together in response to their comments on the Draft Environmental Assessment they did look at the terms and conditions that they have with the owners of Sierra Sunset Lane and found that based on those terms, it didn't meet a traffic analysis. That was part of the reason why they felt that the memo was adequate in addressing some of their concerns. The project team is happy to revise the permit appropriately and work with Sierra Sunset Lane property owner's to have a project that will hopefully resolve some of their concerns and still meet the purpose and need of the proposed project.

Mr. Cartwright, the Nevada Department of Transportation highlighted a few of the considerations they undertook when they were looking at the new approach and potential effect on Sierra Sunset

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Lane. The existing approach into Sierra Sunset Lane is a non-standard approach in its original configuration when constructed many decades ago. It's what the non-standard approach was identified as having acceleration and deceleration lanes. By any modern standard for an acceleration or deceleration lane the existing approximately 100 foot acceleration area or just over widened pavement on the road there doesn't really serve any purpose and is a potential safety hazard if it was used as an acceleration line.

To confirm the department's commitment to this corridor, the stakeholders, and the local residents, they are looking at this corridor with an overall safety goal in mind and are analyzing potential safety conflicts throughout the basin. They're also willing to have a conversation with the residents to get to the heart of their concerns. He's concerned that there's a lot of focus on a traffic analysis. Knowing what goes into a traffic analysis, he doesn't know that they are going to necessarily alleviate any of their concerns with that analysis. Based on engineering judgement and knowing what is involved in the analysis, he doesn't believe it's going to show that there's any effect. He doesn't want to do a traffic analysis and then should that traffic analysis come back and show that there's no significant effect, be done with this. He would like to meet with the residents and have an open conversation about what their concerns are and see how they can alleviate any of those concerns and or with their engineering tools show them that they're going to make the situation safer for everybody through that section of road. They will continue to look at it as they move forward with additional projects.

There's also the mill and overlay project that will resurface US 50 from Stateline to the top of Spooner Summit in the next couple of years. In addition to working on this project and the Warrior Way project which will add a new signal and improve pedestrian safety on Highway 50, he's also working on the mill and overlay that will resurface and provide some safety enhancement through the corridor. He's worked on this section of road for a long time and doesn't want to have negative effects for any of their users. They want to do what's best for the collective and the individual user with the best balance.

Ms. Aldean asked what happens if a motion is made to approve the required findings and those findings are questioned by the Sierra Sunset Lane property owners? If they condition the permit for example, on the preparation of some analysis to evaluate the impact of the project on them and a commitment by the project proponents to mitigate any legitimate adverse impacts, doesn't that contradict the finding that there are no significant impacts that need to be mitigated?

Mr. Marshall said it could be interpreted that way, but it also could be legitimately viewed as a belt and suspenders approach. Where they've done the analysis but adding an extra layer of safety. The only thing he would change that she said was "to mitigate" and use "any significant impacts identified."

Mr. Yeates suggested a condition that might help. On page 215 of the permit that addresses the pre grade inspection that certain conditions have to be satisfied. That the permitting shall submit an updated construction schedule to TRPA prior to commencement of construction. This schedule shall identify dates for the following.... Then there's a listing of six particular items and suggested adding a seventh, especially after listening to the Nevada Department of Transportation's (NDOT) comments which are re-assuring to him. That additional bullet would be "NDOT has met with the residents of Sierra Sunset Lane to review their concerns about public safety as part of the overall corridor planning in this area."

Mr. Marshall said yes, that would work.

Ms. Aldean asked if there's an affirmative obligation on behalf of NDOT to address any significant adverse impacts.

Mr. Yeates said he's leaving to what NDOT said is that they are doing overall corridor planning work in this area. This gives the residents the chance to talk directly to NDOT about their concerns. He's unsure that they have the authority to mandate NDOT to do something. It would state that "NDOT has met with the residents of the Sierra Sunset Lane to review their concerns about public safety as part of the overall corridor planning in this area."

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Ms. Friedman made an additional suggestion to include NDOT, TRPA, the Forest Service, and Central Federal Lands, Highway Division, as the project lead. They've all been part of a team moving this project forward so meetings should include the entire project team.

Mr. Yeates agreed to the suggestion.

Mrs. Cegavske felt that was too many people. How is NDOT going to get all of those groups together to work on this?

Mr. Marshall said they already have a team that consists of individuals from those agents that meets on this project. This is just being inclusive of the already existing team that would provide a lot of different resources to the homeowners, should it be necessary.

Ms. Aldean said it may be correct that they do not have the ability to condition the permit but with an obligation to mitigate the significant adverse impacts. These parties have already allegedly taken a look at this issue and come to the conclusion that there will be no adverse impacts and is not going to be a detriment to public safety for these property owners. So, she's unsure of what an additional conversation will do unless there is an affirmative commitment to do something about it. They may come to the same conclusion, in which case, they'll say that they don't have to mitigate anything because they've come to the conclusion that there are no adverse impacts. That's why her original solution was to have independent third party participate in the review. She's not suggesting that these folks are entering into this agreement in bad faith. There's no compelling reason for them to mitigate what the owners may still see as significant issues then they haven't accomplished anything.

Mr. Cartwright, the Nevada Department of Transportation said that this access onto the highway is a permitted approach with the Department of Transportation. As a part of that permit, the Department of Transportation has reserved the right to modify the access into and out of Sierra Sunset Lane. The existing access is full left in, left out so that would allow them to make every movement into and or out of that approach. The department has reserved the right to restrict that access, which would make it only a right in, right out. During their analysis, they did not feel it was necessary to change or restrict that access. That is something that they reserve the right to do, but they've chosen not to exercise it because they do not feel it is appropriate or necessary for safety.

Ms. Aldean asked if TRPA had the right to condition the permit on the mitigation of any significant adverse impacts that were discovered.

Mr. Marshall said yes, against the project applicants but NDOT is not part of the project applicant. You've heard that NDOT's conclusion is that there was no justification for restricting of any movements because of a concern of safety about the existing intersection. The board can require some monitoring and then coming back to the board with the report that would indicate whether or not there was any significant adverse impact on the intersection.

Ms. Aldean asked if they would incorporate that into the suggestions that Mr. Yeates has recommended.

Mr. Marshall said yes, the board could do that.

Ms. Aldean asked Mr. Yeates if he would entertain that amendment.

Mr. Yeates said yes. Would that be a report back to TRPA?

Mr. Marshall said yes, after a season of operation or whatever the board thinks is appropriate.

Ms. Aldean said after the project is complete and these new turning movements are in effect would be useful.

Ms. Regan said that would be an adaptive management approach that would allow this important safety improvement to get going, but a commitment to work out these issues and monitor and adjust.

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Mr. Yeates made a motion to approve the required findings including a finding of no significant effect as shown in Attachment A.

Ayes: Ms. Aldean, Mr. Bruce, Mrs. Cegavske, Ms. Faustinos, Mr. Friedrich, Ms. Gustafson, Ms. Hill, Ms. Novasel, Mr. Rice, Mr. Yeates

Absent: Mr. Lawrence

Recused: Ms. Williamson

**Motion carried.**

Mr. Yeates made a motion to approve the proposed project subject to the conditions contained in the draft permit as shown in Attachment B with the addition of a condition to special condition number 4.a that would read as follows: "The Nevada Department of Transportation, TRPA, the Forest Service, the Federal Highway Administration, Central Federal Lands Highway Division has met with the residents of the Sierra Sunset Lane to review their concerns about public safety as part of the overall corridor planning within this area. After the project is complete, the applicants shall report back to TRPA on the traffic conditions around the project area.

Ms. Novasel asked if there should be a timeline, for example, within three or six months of the completion. After completion is pretty wide open.

Mr. Marshall suggested one year. Depending on when it's completed, it would give a full summer of implementation that the board would get a report back on.

Ms. Novasel was good with that.

Mr. Yeates accepted that amendment.

Mr. Mathis, Central Federal Lands asked staff to reread the second part of the amendment about the time after the project is complete.

Mr. Yeates said, "After the project is complete, report back to TRPA within one year on the traffic conditions within the area."

Mr. Cartwright, Nevada Department of Transportation wanted to clarify what traffic report they wanted to see. This is pretty broad.

Ms. Aldean said it would be reporting back on any adverse impacts that are observed during this monitoring period one year after completion of the project.

Ms. Gustafson asked if that's for those specific properties.

Ms. Aldean yes, for the specific properties along Sierra Sunset Lane.

Mr. Cartwright, Nevada Department of Transportation said when they're doing any kind of a safety analysis or comparison from an existing condition to new modified condition a year sample period typically is not considered statistically significant. They usually like to have three to five years to have an accurate average representation of what's going on. He has concerns about what they're looking for with such a short reporting period. There's also concerns about tying the Central Federal Land Highway Division to this project for a year beyond its completion. Typically, their role is one of engineering and construction administration, not analysis and reporting after the fact. The department is more than willing to look at all of this as they move forward because they do have additional projects coming through but has concerns about how a board would expect the Central Federal Land Highway Division to be involved in and all of this.

Ms. Friedman suggested that they reword the monitoring requirement and link it more to the US 50 Corridor Management Plan since that will be looking at safety throughout the entire corridor. They'll be doing that safety analysis and is a better timeframe for that as Mr. Cartwright suggested.

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Ms. Novasel had an issue with waiting 3 to 5 years, they're looking for immediate impacts to the neighbors. There are concerns that need to be addressed immediately. She realizes that this is not going to be comprehensive studies, it's just looking at the first year to see what happens. It's not that scientific but it can give some comfort to the surrounding neighbors that we are addressing their concerns by just looking at what has happened in that first year.

Mr. Marshall said he would be in favor of leaving the condition as is and they can always report on whether or not the annual or the one-year report is statistically significant. Then they can take that under consideration at that time.

Ms. Aldean asked if based on Mr. Cartwright's comments the reporting agencies should be NDOT only.

Mr. Yeates amended the motion with "After the project's complete, NDOT shall report back to TRPA within one year regarding the traffic conditions within the project site."

Ayes: Ms. Aldean, Mr. Bruce, Mrs. Cegavske, Ms. Faustinos, Mr. Friedrich, Ms. Gustafson, Ms. Hill, Ms. Novasel, Mr. Rice, Mr. Yeates

Absent: Mr. Lawrence

Recused: Ms. Williamson

**Motion carried.**

B. Science Briefing:

1) State of the Lake Report by Dr. Geoffrey Schladow, University of California, Davis

Ms. Regan said we are coming off one of the most historic events, the Caldor Fire in Lake Tahoe's history. It's said that they must learn to live with fire and it's a wonderful program that the University of Nevada Reno developed. Now that we know more about what's happening in the era of fire, is that they must learn to live with climate change. A lot of what you'll be hearing in this briefing touches back to overall impacts that they're not going to be experiencing in 50 or 100 years but what they're actually experiencing today.

At a past board meeting, Dr. Mike Dettinger provided a presentation on some recent climate reports that were published and he said expect the extreme. We're going to go through periods of big droughts, big weather events, flooding, and snow events in this variability that is predicted. And certainly, what they've just experienced with this big drought, and then this atmospheric river event they just experienced.

The presentation was provided by Dr. Schladow.

Dr. Schladow said the State of the Lake report that was produced this year talks about conditions up through the end of 2020.

(Slide 3) 2020 was a warm year. Maximum temperatures are on the top and minimum temperatures are on the bottom for the past 110 years. The temperatures have been getting warmer, no surprise there. Relative to that long term average, 2020 was a warm year.

(Slide 4) 2020 was also a dry year. The precipitation for 2020 was below the long term average.

(Slide 5) A consequence of having a warm and a dry year, is that lake level falls. This shows the historic lake level data going back to the beginning of the last century, Through the end of 2020, the lake level had gone down almost 2.5 feet. A couple of weeks ago, it went down below the natural rim of 6,223 feet. That was short lived with the recent storm that brought the lake back up to approximately six to seven inches above the rim but and again may fall back down below it.

(Slide 6) The surface of the lake was warm, as well. Until now he's been talking about air temperatures now, turning to the Lake itself. Since 1968 the surface of the lake has been warming. In 2020 it was above the long term trend (dashed line). (Slide 7) shows the average surface

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temperature in July. It's hard to say if it's going up or going down, or just oscillating year to year. July's average surface temperature is 68.7 degrees and the maximum temperature recorded at the surface in 2021 was 72.5 degrees which was closest to the warmest ever recorded. What's important about this is not just the temperature, but how temperature can impact the ecosystem. Based on data from around the world, this temperature of about 68 degrees Fahrenheit represents a little bit of a threshold where cyanobacteria (algal blooms) can start to establish themselves as cyanobacteria. Not saying that Lake Tahoe is on the verge of having conditions like this but the mere mention of cyanobacteria and harmful algal blooms was unimaginable in Lake Tahoe 20 years ago. (Slide 8) cyanobacteria at Regan beach. It's a good warning that conditions in the near shore are changing rapidly.

(Slide 9) One of the consequences of the surface temperatures getting warmer is that the lake is staying stratified longer. This means the surface of the lake is getting warmer and deep down it's getting colder. Warm water is light and cold water is dense so it's more difficult for the lake to sort of mix vertically. This is the number days every year and back in the 1960s and 1970s it was 170 days and now are closer to 190 to 200 days. If there's more months that it's stratified then there's less of the year that it can start to mix. That's the issue with this increase in stratification is that the mixing of the lake, particularly, when it mixes all the way to the bottom, is reduced.

(Slide 10) Reduced deep mixing. The column represents how deeply the lake mixes in that particular year. In the early 1970s there were three years in a row when the lake mixed pretty much all the way to the bottom and stayed mixed for days and weeks. Through time there seems to be less occurrences of deep mixing and many more occurrences of shallow mixing. In 2020 and 2021 it mixed down to about 500 feet, about a third of the way down which then the bottom of the lake didn't get refreshed. All that high oxygen that's in the surface waters wasn't brought down to refresh the bottom of the lake, the pool of nutrients building up at the bottom of the lake continue to build up without any dilution.

(Slide 11) Nitrogen is the primary nutrients that drive the water quality more directly. This hasn't really increased. This is maybe a testimony to projects that have been implemented and actions that property owners are taking. The exception is in 2017 when there was record inflow.

(Slide 12) This is the nitrogen that's in the lake itself. Despite the fact that the inflows, the streams haven't increased, they may actually have decreased the amount of nitrogen they are bringing in. The nitrogen within the lake is continuing to increase and the other primary nutrient, phosphorus are showing a similar pattern of increase. These nutrients are important as they drive algal growth which is measured by the chlorophyll. Over the period of record that hasn't really increased which is good. Although, the amount of biomass is the same, the species, the individual characters are changing and they're getting smaller and smaller. There are more of them from the point of view of scattering light reducing clarity is the important thing of this shrinking size of chlorophyll.

(Slide 15) Annual clarity. During the 1970s, 1980s, and 1990s the clarity was going down. It was decreasing from about 100 feet to about 70 feet. At that point, there was an increase in scientific understanding, an increase in capital availability, an increase in projects, and they've witnessed this slowdown in the decline of clarity. It's leveled off at about 70 feet which is a laudable achievement. When the basin wide goals and often goals of the regulatory agencies such as Lahontan Regional Water Quality Control Board and the Nevada Division of Environmental Protection who set a goal of by 2025, they would like to be at an average of around 80 feet of clarity. They're not there and won't be there by 2025 but knows there's a lot being done. If they keep their eyes on restoring clarity back to 100 feet then it's a good time to start thinking about which of the approaches, they're currently taking are bearing fruit and which ones need to be revisited. If the year is divided up between winter and summer, winter has been an improvement in clarity. Summer may be where most of the problem exists. This is where there hasn't been any arrest in the rate of clarity decline. Climate change is a major player in this which is changing the lake physically, possibly chemically and biologically. There's a lot more work that needs to be done. This is an area where the Tahoe Science Advisory Councils is currently working with a lot of a lot of the scientific groups.

(Slide 18) Nearly all of the lake bottom looked like the photo on the left in the years past. Now a significant part of it looks like the photo on the right with Asian clamshells and Metaphyton which is a type of algae that's filamentous algae that is growing coincidentally with Asian clams. This was first observed in Marla Bay in 2008. It is bad now because of the low lake levels and conditions are

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conductive for it to be washed up. The connection with the Asian clams is that through their excretion concentrate the nutrients in the lake create ideal growing conditions for Metaphyton. Climate change has a major role. It's the bottom of the lake, not at 1,500 feet, but the bottom of the lake in the nearshore.

With climate change there is lake warming, nutrients added by wildfire smoke and reductions in ultraviolet radiation. This begs for action and there are a lot of things being thought about and considered.

Climate change in connection with clarity, metaphytons which he believes are big issues facing the lake. They recently completed a report on future climate change and particularly on the extremes.

(Slide 23) The pink areas represent future air temperatures under higher carbon emissions. The pink area represents the combined results of a number of models. The blue areas represent a different climate scenario, one that has less carbon. They're probably above the red scenario for the trajectory right now. This is urgent. Air temperatures are going to continue to go up. The gray area is the past and is the area used to calibrate these models.

(Slide 24) Snow is going to decrease. They're going to get a lot more rain. The precipitation will probably stay the same but the percentage of snow will go from about 50 percent down to 20 percent. All these plots shows the mean of a number of models, thick black line in the middle and the bounds, the upper and the lower represent the extreme cases of one of the individual models.

(Slide 25) Stream flow example at Ward Creek. To the left of the black vertical line represents is historical Ward Creek, to the right is what the future may be according to these models. The red line represents some of the average of the models by highest predictions year by year. The blue line represents the lowest flows.

Three things to notice are that flows are going up. Second, is the peaks are huge compared to the historical peaks. Third, is the blue line at the bottom are the extended dry periods, far more extended low flow periods, than we had historically.

(Slide 26) The thick black line is the mean and the dashed lines represents the daily lake level rise. The 250 millimeter per day is that those peaks on the right, lake level would be rising 10 inches per day. Between the rim and the top of the dam there are 72 inches. If such an event were to occur when the lake was midway between the rim and the dam, it would be less than one week before the dam overflowed.

Key results are a warmer lake is a disadvantages to native species, increase in metaphyton growth, earlier peak stream flows, and much higher, more intense droughts. The lake gets stagnant because of the stratification. If water is released too much, too soon then there's water shortages and not releasing soon enough, then there's flooding. There's the idea of the forecasting tools based on forecast of not just the weather but climate for the coming months, increasingly have to be part of the planning arsenal utilized.

Presentation can be found at:

[Agenda -Item-No.-VII.B.1-State-of-the-Lake-Report.pdf](#)

### Board Comments & Questions

Ms. Gustafson thanked Dr. Schladow for the presentation. It can be a dismal outlook with everything that confronts us all when they look at what can happen to the lake with climate change and all the factors they're dealing with.

Dr. Schladow, UCD said he didn't intend to leave a feeling of dismay and despair. Generally there's been this wealth of increasing knowledge on climate change and adaptation, particularly in Tahoe. The fact that they know this, not with absolute precision, but they have a good idea of the trends and where they're headed puts them in a powerful position. There's a chance that we do have some years to plan.

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Ms. Aldean asked what accounts for the variability of the deep mixing from the 1970s to the present day.

Dr. Schladow, UCD said the reason the lake mixes is primarily because of very cold and long winters and has very little to do with the wind with an individual storm. Climate has always been variable, weather is always different. What's clear from climate predictions going forward is that there is going to be overall warming and longer periods of mixing but it won't last forever. It's the frequency, this four to five year interval that we used to have looks like it's being broken because of the changing climate and stratification season is getting longer. When it does mix in the future, it may mix just for a few days. Which is good enough to renew the bottom waters. They have to get smarter about how they control that. The way to control this is through the land use policies, and things like that. They have to build up the resilience of the lake to withstand long periods of no mixing. It isn't like it's all over, it's a long way from it.

Ms. Aldean said the presentation stated that there was an increased presence of nitrogen in the lake, but not in the streams feeding the lake, is that because of atmospheric deposition?

Dr. Schladow, UCD said atmospheric deposition is one of the major sources of nitrogen. He would have thought with cars getting more efficient and electric cars, it would become less of an issue. They haven't looked at what the current nitrogen loading rate is. A lot of it is tied to this mixing of the lake. Most of those nutrients are at the very bottom of the lake and without mixing they stay there and are not accessible to the algae. When it comes to the surface, suddenly nitrogen is being re-used by the algae, and the algae being eaten by the microscopic Zooplankton, the fish are getting fat, etc. That's how a lake should operate. It's not just chemistry, biology, or physics but rather how they all interact.

Mr. Friedrich said it seems to him with the climate baseline changing and what Dr. Schladow laid out in the presentation they would need to look at strengthening the adaptation mitigation measures in response and reconsider the baseline with land use and other policies. Second, climate change is a global issue and the more they can connect the dots with residents and visitors to keep Tahoe blue and how everyone needs to take action for climate change at home. The education work that Dr. Schladow and others are doing is incumbent, they're not going to reverse the trends of climate with our local actions but they need to help connect the dots for people who love Tahoe. Are there any thoughts on those educational opportunities, or work they're doing related to helping people see the connection between keeping Tahoe blue and their work on climate? And also, adjusting management responses to reflect the changing climate drivers.

Dr. Schladow, UCD said that's always the tough question of what they can do. It's correct that there's individual action such as driving less, being more conscious of what they're doing, the use of fertilizer, etc. It's getting to be challenging. The arena they can do the most work in is building resilience. For example, the big concern about the lake not turning over and mixing is that we're going to run out of oxygen at the bottom of the lake and is a nightmare scenario. That's something they're still working on and understanding the rate at which that is happening. They can slow that rate by nutrient control, which is projects on the land, less driving, etc. If there are less nutrients the algae is growing slower and they're consuming less oxygen by decomposing once they die. Just an example is that maybe the lake can withstand 20 years of not mixing. If they can extend that to 25 or 35 years then when they get that extreme winter in 2038 for example, that year alone maybe enough to carry us forward for another 30 years. It's adapting to the world they're in, they can't change it as quickly as they would like but adapting to it is critical. That's where some of the leadership from TRPA and others is critical. Science is there to do what they can do. They can do everything but make the decisions.

- 2) Caldor Fire Science and Monitoring Overview by Dr. Sudeep Chandra, University of Nevada, Reno

Dr. Chandra provided the presentation.

Today's presentation will talk about living with wildfire, what they know and don't know from the direct and indirect impacts from wildfires through studies from 1985 to present day with the Caldor Fire.

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Fire is a natural process. Not all fire is bad and that it's been important for them historically. He'll go through what they feel is happening in the Sierra Nevada region and the Central Sierra related to fire and fire suppression, increased ignitions, and changes to mountain ecosystems. Then he'll give a primer on Tahoe fire related research from 1985 to the present. They've had quite a good history with this great science community of studying fires in and outside of the basin and its impacts. Lastly, he'll provide an update on the Science Advisory Council and other member institution responses on studying the Caldor, Dixie, and Tamarack Fires and the impacts on Tahoe.

Fire is a natural process and historically in the Tahoe Basin they've had very low intensity fires over time. Prior to colonization fires burned through the East Shore of Lake Tahoe in most years but only all watersheds about every three years or so. These were low intensity fires. The scientists can determine that pre colonization native people like the Washoe Tribe would spend their summers near the lake and burn areas and then move down out of the basin in the winter. They have estimates for measuring these by looking at tree scars or wood anatomy. (Slide 3) Figure A shows the growth within those rings but also the scar development that's there. They can understand where in space in the watershed and in what time periods they may have had these low intensity fires.

(Slide 3) For the Northern Sierra Nevada Region, and Tahoe Basin, the bottom graph gives a history of time, and the number of watersheds that burned over time in approximately 10 years. They get these moderate fire intervals that occur over time with low intensity.

(Slide 4) In the Sierra Nevada region these types of fire intensities can vary historically by elevation and forest type. The east side woodland and pine forests would have these interval burns of about 11 years, ranging from 5 to 40 years. But higher up into the forest in the Red Fir Forest, one might see 40 year intervals and 15 to 140 year ranges. This is largely because of snowpack as well and moisture that's in the system.

(Slide 5) Today there are three ingredients that are causing large fires. This is measured quantitatively through different scientific studies. There's a lot of human disruption going on, there are ignitions that are leading to human caused patterns of fires and lightning which might come with storms. The atmosphere conditions are just right so there's an increased length and severity of fire weather that might facilitate high intensity fires. Then there's resources to burn, high growth rates of certain types of plants or trees. As they've grown within the system the structure of vegetation is changing. All of these things are leading to the cause of the large fires in the last hundred years, particularly in the last 30 years.

(Slide 6) Humans are the major source of ignition in the Sierra Nevada. This is something we cannot ignore. The bottom left graphic is clear on lightning versus human ignitions throughout the year in the Sierras. Proactively, they've done a very good job more recently by putting signage up, trying to make sure people need to control or not have campfires out in the back country, and restrict fire use for example. This is one way they can help manage the severity of burns, is just preventing the lighting of these fires in basin. This is common throughout the Western United States. The map on the right, with the red dots in the California area and in the Sierra and Great Basin, are quite significant. If they're thinking about managing the fire future, this is one great educational opportunity to continue to make sure that they understand they are part of the sources for starting these fires, and they need to minimize that when there's high flammability.

(Slide 7) The shifting climate worsens the condition at the lake and the change in the snowpack that's predicted whether it's 50 percent down to 30 percent will worsen the fire weather potentials in the system. There's excellent work done out of the University of California, Merced from John Abatzoglou's lab that looks at the fuel aridity of the fuel that's on the ground. Drier fuels from earlier snowmelt will lead to increased fire behavior. This is shown in the bottom left graph. Since the 1970s the increase of fire frequency in the West is going up in spring and summertime. They can use this to plan to the future with this type of knowledge based on how they might manage the forests and prevent human ignitions in the landscape.

(Slide 8) Fire suppression has increased the surface and ladder fuels that we see. When there's ignitions, they're seeing a lot of burning and the lower forest part of the canopy and then lights things up in the top of the canopy.

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(Slide 9) The fire regimes are changing dramatically with the shifting climate and the response to drought. But there are also a number of studies that they've conducted in the Tahoe Basin since the 1980s to try and understand what the impacts of fire would be to the lake and watersheds.

(Slide 10) When Dr. Schladow was talking about water clarity, they were thinking about clarity and stability of clarity overall, and the different changes in clarity by different seasons. Clarity loss in general results from two different types of particles. It results from the tiniest of algae that they might see in the system and it results from the inorganic sediments that are delivered from the watershed or sometimes the atmosphere. As clarity pertains to wildfires, wildfires are diverse in nature whether low or high intensity. Whether it's in certain types of vegetation or other types of vegetation. Those wildfires can influence the type of nutrient or particles that might get delivered to the lake, which might change the clarity which is what they've studied over time.

(Slide 11) There been some limited focus on the study of direct watershed impacts versus indirect smoke impacts to Lake Tahoe's Clarity and there's been a few of these studies.

He'll review the direct impacts of the Gondola Fire in 2002, the Angora Fire in 2007 and the direct watershed burn influences on stream chemistry and stream responses, and then the indirect impact of fires outside of the basin that might be causing smoke plumes into the basin.

(Slide 12) The Gondola Fire in 2007 was in the Southeast corner of the Lake. It was one of the first times they tried to do some more intense studies on the direct impacts of wildfire burning within the basin. One of the major findings from studies that have occurred in the Gondola Fire area is that the erosion of carbon can occur for about 10 years after a fire. About two or three weeks after the fire there were rainstorms. Coupling fire effects in the watershed with immediate rainstorms and weather right after it can lead to big changes. Photo A shows that major ash flows can occur from the site if there's rains that coincide with those fires zones. Photo B shows that there's a hydrophobic or a layer of soil that's created during the fire, which persists 10 years later. These burns can change the soil characteristics in the watershed and make things a little more hydrophobic or water repellant and have sheet runoff that might occur. The other thing that they saw almost 10 years after the Gondola Fire is that there's no canopy left in portions of the moderate severity burn areas in photo C. These are decadal trajectories that they start seeing in the basin. The Gondola Fire represents what happens in a system after there's a fire with weather that allows some of this runoff to occur more immediately, and then changes to the soil structure, and then subsequent runoff and regrowth of that vegetation.

(Slide 13) The Angora Fire of 2007 also had direct impacts of wildfire effects from watershed, in this case watershed to stream water quality and health. This fire occurred in the Southwest corner of the basin. The types of impacts that might be seen with not only burning forests, but the burning of watersheds above sensitive areas like wetlands and meadows that are naturally designed to protect water quality downstream.

(Slide 14) Take a ways from the Angora Fire are multifold while the science didn't have long term monitoring at the Angora site there is some evidence that there's a recovery of nutrient sediment loading over time with no major evidence of sediment or nutrient inputs from the burned urban areas into Angora Creek. They think they got pretty lucky. After that fire they had a bit of a dry period, they didn't have rains occurring like they did with the Gondola Fire immediately thereafter. With a mild winter and spring they recovered a little more quickly. They do think that the urban runoff below the fire zone contributed to higher concentrations in lower Angora Creek compared to the Upper Angora Creek site. The idea that wet meadow restoration provides an effective way to prevent some of these nutrients coming in down the Angora Creek area.

The Angora Creek conditions and urban runoff after the fire were much better than what's been observed at other urban sites around the Tahoe basin. These are some lessons learned when there's direct burns in the basin. Some of this luck and some is not having wet weather right after the fire, or where these fires might be occurring in the basin. Having sensitive ecosystems below them like wetlands or meadows that can help absorb some of the runoff characteristics so they're not damaging the lower basin streams or the lake.

(Slide 15) There are now indirect effects of fire. Rather than burning watersheds, they've seen indirect effects of fires that occur from far away, and then the smoke comes up, and it tele

connects to the lake and then affects clarity. The first study that showed this was conducted by the University of California, Davis, by Charles Goldman in 1985. In this case there was the Southern California Wheeler Fire that occurred in 1985 and that smoke came up along the crest line of the Sierra Nevada and it increased algae in Lake Tahoe in July. At that time, it was the highest algae that was recorded for the summertime up until that point. Dr. Goldman and colleagues in that paper make a good set of points in that a little bit of smoke can go a long way to stimulating Lake Tahoe's algal growth in the summertime. The likely culprit for increasing this algae at that time was the fertilization of the waters through trace elements. This was not necessarily measured in the system but that's what was suggested. At that time, Dr. Goldman was even a prophetic in some ways of just trying to get us to think about the future. The paper stated, "We all should remain alert to the effects of more numerous smaller fires that might not have a dramatic, visible effect on the atmosphere, but nonetheless, contribute to the variability in annual production of algae or seasonal patterns." They were thinking about this 40 to 50 years ago.

(Slide 16) He and Dr. Schladow were a part of a study that looked at the King Fire effects of wildfire smoke on the lake and they know that wildfire smoke can create thick and large atmospheric concentrations that affect light transparency. This is a combo of what they're going to see more and more in the future. The King Fire affected the South Shore part of the lake and not as much on the North Shore for certain periods of time. The data graph in bottom right corner of the Rim Fire show the red lines of periods ultraviolet light that decline in relation to visible light in the system. The smoke effects have direct effects on the light type of transparency that might be seen.

(Slide 17) They produced a paper recently (not for Lake Tahoe) but for a lake in Northern California where they looked at the effects of 2018 wildfires on the lake. Rather than thinking about cooling or warming, and just looking at clarity and particles, they found that wildfire smoke cools lakes', changes the light conditions and depresses the light conditions. It increases the algae growth in the top layer of the lake, this would be akin at Lake Tahoe to where they measure clarity. But in the deeper waters where they have another set of algal growth, where the plankton eat and the fish utilize that energy for their growth, that deep water plankton virtually disappears. They also noticed that trout and other organisms changed their foraging behavior with these light conditions. These wildfire smoke effects can over a 58 day period in the summertime have immediate consequences to the entire ecology system, not just the clarity.

The question is that whether or not lakes can rebound from these wildfire smoke affects. At the small lake in Northern California, the following year of 2019 seemed to be okay as it went back to background conditions, which is helpful in managing the lake.

(Slide 19) Last summer, the Tahoe Science Advisory Council initiated a call to develop both the process and gather short-term, immediate scientific studies that would assist them in Lake Tahoe. At the Science Advisory Council they're trying to wear two hats of the scientific hat where they're trying to understand some sort of process based on understanding change but also to facilitate that information to get it into the hands of managers and management agencies to understand what's happening at the lake. That first step was their membership meeting in the late summer where they made a request for ideas and proposals and what needs to be done immediately. From that they came up with three different areas with the management community that they are initially supporting. The idea is to look at these direct watershed burning impacts and indirect effects. They're recommending enhancing tributary monitoring to the TRPA monitoring program to increase the extent of the current monitoring of the streams impacted by the fire such as Trout Creek, Saxon Creek, Cold Creek and the Upper Truckee River. That's to understand those nutrient loads such as the nitrates, phosphorus, and the particles, for example.

Then another project that has been recommended is to assess the effectiveness of forest treatments. There's discussion within the community on whether forest and fuels treatments help prevent the catastrophic fire in the basin, that jury is still out. There's not actually science data backing that, it's people suggesting certain things are happening. One of the projects they're recommending is collaborating with UC Berkeley and through the Forest Service is to understand how treatment projects help firefighters battle the Caldor Fire and how that vegetation management may have impacted fire behavior.

The last study they're conducting are on these indirect effects, how does wildfire smoke affect the clarity? This summer there was wildfire smoke in the basin from the Caldor, Dixie, and Tamarack

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Fires and it put lots of leaves and material into the basin along with poor air quality. With the support from both the Council, the League to Save Lake Tahoe, the Tahoe Fund, TRPA, and various state agencies, they're trying to understand the effects of smoke on the basin. And that's a collaborative partnership between the University of California, the University of Nevada, Reno, and three other institutions.

(Slide 20) This type of air quality can change quite dramatically from morning to night, and it can change from south to north of the lake with the intensity of the Caldor Fire. They're using air quality monitoring devices to look at the intensity of the air quality. They've also put out smoke and particle samplers around the basin.

(Slide 21) There's about eight different locations in the south to north in the basin that they started measuring ash on the beaches. They put out various devices such as a funnel collector, buckets used by homeowners trying to collect particles depositing on the lake from the start to the end of the Caldor Fire near Meyers to Heavenly, TRPA, and as far north to Tahoe City at the UC Davis Field station, and Alibi Brewery. With this they're trying to understand the distribution of smoke and what that deposition might be onto the lake surface.

(Slide 22) The collaborators at UC Davis have continued their monitoring of the lake and enhanced their monitoring of both particles, nutrients, and water quality profiles. They added more monitoring time periods during the Caldor Fire to understand what those impacts are to light, and the biology of the lake. Another tool is a drone that's being sent out north to south, east to west to measure particles within the water during and after the fire.

(Slide 23) The next steps of the Science Advisory Council is to take movements with partners on what the longer term projects may be to understand the impacts of these big disturbances like fire. This issue is not going away, and they may have just had a great snow and rain storm but it could be dry next summer. They need to look ahead and start planning programmatically how the science community can help the management community in addressing problems and understand what the impacts are and planning to the future. The Watershed Science Action Plan was created in 2020 or 2019 that included forest and lake resilience and then looked at the science actions to understand climate and wildfire. So they need to revisit the Science to Action Plan in 2022 and integrate the Lakes watershed plants together.

They're looking at engaging with the environmental improvement program and future efforts to integrate the best science that's available for understanding climate and large disturbances, like wildfire, drought, and atmospheric rivers. That's a step by step, slower process. But they've been communicating with their colleagues at TRPA to make this happen. They want to continue to educate and work with the community at large about the importance of science in the basin.

Presentation can be found at:

[Agenda-Item-No.-VII.B.2-Fire-Science-and-Monitoring.pdf](#)

### Board Comments & Questions

Ms. Novasel asked what the effect might be from the most recent occurrence. It was a record breaking day of rainfall on top of the fire that was still being put out. She's concerned how the tributaries are going to be impacted.

Dr. Chandra, UNR said the devil's in the details but having the enhanced monitoring program will help them to understand what the immediate effects will be. There's landslides that have happened near the Dixie Fire and that material is not only going to affect the streams but it could affect how they might restore that watershed because of losing good quality soil material on the top. They saw that at the Gondola Fire as well. There are researchers independent of the Science Advisory Council that are collecting information from around the nearshore of the lake and the streams. There's a lot of activated energy that isn't necessarily all funded through Lake Tahoe as programming to try and understand the effects of these fires. His take would be is that they are doing the right things at this point in terms of responding to the fire, getting monitoring in place, and some of these smaller science projects. This is not the last year this will happen and hopes the Science Advisory Council, and you all can encourage the management agencies to streamline the red tape that's needed to get out immediately after the fires and to initiate networks into the

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watershed, better monitoring in the watershed so we can understand what the effects of these fires are in the future. That is something they're still building out. There's been snapshot science studies over time but not nearly the science that's needed to understand the effects of big disturbances, like wildfire.

Ms. Novasel said the fire was located in her District and they're finding that the biggest issue is the federal government red tape to get the cleanup done. It's going to cause issues with the run off with our ability to get in their cleanup spots.

Dr. Chandra, UNR said the good news in all of these stories is this is likely not the last event, let's start planning to the future. That adaptation of response, it's something at least he has a lot of energy around trying to solve from the science viewpoints.

Mr. Friedrich said great to see the effectiveness of forest treatments being done. He asked what the timeline was for that evaluation and then what's the communication plan to agencies and the public about those results. Also, are they comparing those with the scientists and other burn areas throughout the California and the west?

Dr. Chandra, UNR said regarding the treatment fuel's effectiveness, the person that proposed that project is Forest Service scientists that's well versed to understand the history of fires and vegetation across the Sierra. It will probably not just be the Caldor Fire that will be in this comparison but also other zones.

Mr. Friedrich asked when those results will start coming forth and what are the thoughts on communication plans for people to understand the reason for forest fuel reduction projects. Also, to build more support and funding for them assuming the evidence leads to that conclusion.

Dr. Chandra, UNR said the Science Advisory Council members have been well aware that they need to turn some things around rather quickly. They're trying their best to respond by February 2022 to the wildfire smoke study. For the other projects such as the land use evaluations, he believes they'll see some initial evaluation come out, but for a complete study, it's going to take some time.

Mr. Yeates said in this last super storm that came through some of the areas that were burned last year on the coast around Santa Cruz and Sonoma had significant mud and slides even after they tried to do some of the restoration work. TRPA is going to be addressing a change in the regulations to be able to do more mechanical fuel treatments on steep slopes. When this is done, they need to ensure they don't create a sediment problem for the lake. Even one year after some of those fires along the coast there was tremendous runoff and erosional problems with this past storm. It would be devastating for Lake Tahoe. The work of the Science Council and the partners would be helpful for them as they start making decisions on how to address the fuel treatment issue.

Dr. Chandra, UNR said the Science Advisory Council has recommended that they don't work with science in a vacuum just in the Tahoe basin. The nice thing about having studies done outside of the basin is because of the steeper slopes and different vegetation. Those can inform what they're doing here. Some of the scientists who are stepping up to the table have connectivity to some of these other sites which will be helpful especially when it relates to direct watershed burning and restoration. In the science to action plan that was created for the watershed that they'll be amending there was also discussion on restoring to the future and think about which vegetation can survive on what type of slope, how it's going to do in a shifting climate, and what would be resistant to any big disturbances in the future, like drought. That's an area of investment that they could benefit from both within the Tahoe basin in that region.

Ms. Aldean said one of their major focuses is on invasive species. Theoretically anything that's non-native is an invasive species. But in this instance, they're looking at bringing in other plant types that are more fire resistant even though they may not be indigenous to Lake Tahoe. A lot of effort has been spent on re-establishing certain types of vegetation that have historically existed in Lake Tahoe. But as part of an ongoing adaptation plan maybe that is not the direction, they should be moving in. Possibly what they should be doing is looking at identifying species that are better adapted to the changing climate.

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Dr. Chandra agreed. They don't want to bring in species that shouldn't be in the basin. What he was suggesting is that they might call them the same species but there may be as genotyping or certain types of ingrain characteristics that might allow certain persistence and how much to plant in the basin. When they're reacting to fire, they're looking at which plants will be resistant to change and come back. Think about forest planting of trees and the type of genotypes and planting less.

Ms. Aldean said work has been done with hybridization so there can be a species that have been subtly altered to make it more drought resistant. It's not beyond the realm of possibility and might be an avenue to pursue.

Dr. Chandra, UNR agreed. They need to encourage those types of studies. There aren't a lot of great studies whether it's in the Tahoe basin or outside of it for the type of plantings they need to do at large scale. Working with the Forest Service to identify other locations where they could start testing this would be important.

### C. Update on the Caldor Fire Recovery Program

Ms. Friedman, TRPA, Ms. Williams, Forest Botanist, Forest Service, Lake Tahoe Basin Management Unit, and Mr. Coe, Forester and Hydrologist, Cal Fire provided the presentation.

Ms. Friedman said she'll provide an update on the Caldor Fire. Ms. Williams will give a presentation on the Burned Area Emergency Response plan, and Mr. Coe, will give an update on the Watershed Emergency Response Team Assessment.

The Caldor Fire burned slightly less than 222,000 acres in total. About 10,000 acres were on Lake Tahoe Basin Management Unit property in the Tahoe basin and was fully contained on October 21, 2021.

The first stage of recovery is fire suppression and repair. They're transitioning from that phase into the second phase which is the emergency stabilization phase and implementing the recommended projects that come out of that Burned Area Emergency Response Plan (BAER) report.

Shortly after the fire was contained, there was an atmospheric storm that moved into the basin. The National Weather Service reported that South Lake Tahoe received approximately 6.37 inches of rain and up to two feet of snow in the upper elevations. This had an impact on the fire and downstream resources. TRPA has been working with the jurisdictions primarily El Dorado County to help them manage post fire risks especially in light of the storm. They were able to move some funding around and help El Dorado County purchase a vector truck to adequately maintain all of their storm drain infrastructure. TRPA's Stormwater Program worked with El Dorado County to get them funding to purchase sand and bags and make them available for property owners to mitigate any flooding. They also reached out directly to people who were identified at risk from debris flow or flooding.

Because of the funding that both the states of California and Nevada provided, the USGS was able to monitor the streams and get real-time data on streamflow, turbidity, and sediment yield, specifically fine particle sediments that they were concerned about getting into Lake Tahoe.

(Slide 4) Shows a seven day period and on October 23-25 was the large storm event. Fine sediment spiked in the Upper Truckee River at Highway 50 but dropped fairly quickly. The stream restoration projects downstream helped absorb some of that storm water and filter out some of that fine sediment particle.

Ms. Williams presentation:

Ms. Williams, Forest Service, Lake Tahoe Basin Management Unit, Lead Resource Advisor for the Caldor Fire for the basin. Resource Advisors work within incident management teams to avoid damage to natural and cultural resources during the fire suppression efforts. When those damages can't be avoided, they work closely with the team to repair them.

(Slide 3) The green lines are all of the suppression features that have been repaired as of October 20<sup>th</sup>. The red lines are end points of what's left. During the active suppression of the Caldor Fire, 61

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miles of dozer lines were constructed, 22 miles a hand line, six miles of paved and unpaved roads were impacted. They're also tracking where dozers intersected stream corridors and inventoried 46 of those occurrences which were repaired before the storm. There's various other types of repair points as well, staging areas, drop points, and anywhere where there's ground disturbance.

(Slide 4) Are examples of before and after photos for some of the repairs. The importance of the wet meadows and streams that buffered some of the post fire runoff and erosion were areas that they prioritized for repair.

The top left is where a dozer impacted the stream channel. The standing water pushed a lot of sediment into the channel. The team of resource advisors work with heavy equipment personnel to remove sediment from the stream, rebuild channels, pull slash, and topsoil back over the line in the upland areas to restore that seed bank. Then pulled down vegetation slash over the surface to provide some cover. When the resources are available, they'll take willow and alder cuttings to try to help promote that more rapid recovery of living vegetation.

On the right is an example of a meadow that was impacted by a dozer line in Christmas Valley. They're working to de-compact those soils, salvage the sod that was pushed aside and replant that sod.

The bottom left is a dozer line going up to Angora Ridge. They've pulled the top soil back over and used a method called chunking to create micro basins. It's an alternative to creating water bars which concentrates flow and can cause more damage to areas that they're pushing the water towards. Chunking helps capture water and seeds to promote recovery while preventing runoff and erosion. They also pulled the slash back over the site to provide some cover during rainfall events as well as to try to hide that scar.

(Slide 5) Of the 61 miles of dozer lines there is one mile left to repair a long Osgood Road, west of Osgood swamp. They had limited time and resources before the storm and were only able to remove any damaged culverts and cleared out drainages. They'll return for full repair when the snow clears. On the left is the Echo Lakes hand line which will be finished in the summer of 2022 due to snow. Sunset Stables was used as a staging area and is another area that they'll put wood chips and ground cover over that site to prevent erosion.

(Slide 6) Burned Area Emergency Response process. This program is responsible to identify imminent post fire threats to human life and safety, property, and critical natural and cultural resources on National Forest Service land, and to take immediate actions to manage unacceptable risks. First is to identify those values at risk, conduct a post fire watershed assessment with the team of interdisciplinary specialists and then determine if an emergency exists by evaluating risk based on the probability of something happening and its magnitude. When an unacceptable level of risk is determined, treatments are identified. El Dorado and Lake Tahoe Basin Management Unit Forest Supervisors are advised of the proposed treatments prior to implementation which is where they are now.

(Slide 7) The watershed response products that that BAER team develops is the soil burn severity. This mapping product is based on remote imagery, the burned area, reflectance classification BARC map. It's then field calibrated by soil scientists to assess the field soil burn severity. The photos show unburned to the high severity burn. The red areas is high soil burn severity that was less than three percent of the area within the basin burned at high severity. The yellow is moderate and the blue is low. This image also shows the distance between the lake and the burned area. All of those different factors the relatively low amount of high soil burn severity, the distance between the lake, and the burned slopes and a lot of the filtering capacity available within the unburned reaches all lead to a decision not to the propose any hill slope treatments for erosion control.

(Slide 8) The BAER team submitted a preliminary initial request to the Regional Office for funding for proposed treatments. Preliminary Initial-approved: Road Stabilization, Hazmat Containment, and Burned Area Closure. Initial-pending approval: Trail Stabilization, Hazmat removal, Road storm inspection/response, Developed Recreation Site Closure / Hazard Tree Abatement, and Invasive Weed early detection and rapid response. The full request proposal is still pending and is being reviewed by the Washington office. It involves additional road and trail stabilization, and the removal of hazmat at these sites.

All of the BAER treatments are proposed with an evaluation of the feasibility of implementing them within one year, and ideally before the first damaging storm. So we were able to implement some of those emergency treatments before this last storm but there's there is still more work to do.

Presentation can be found at:

[Agenda-Item-No.-VII.C-Caldor-Fire-Update-1.pdf](#)

#### Board Comments & Questions

Ms. Novasel thanked all the crews who got this work done before this storm. She didn't see Echo Summit on the soil burn severity slide. She hasn't that area yet to understand where the soil concerns are. She would assume it's pretty high there since that's where the burn came into the basin. She's concerned with the soil erosion coming down into the tributary at the bottom of Echo Summit at the Upper Truckee River.

Ms. Williams, Forest Service said the soil burn severity map of the entire fire can be found at <https://inciweb.nwcg.gov/incident/article/7842/66601/>. Echo Summit had a lot of high vegetation burns especially around Johnson Pass south to Highway 50 with a high tree mortality rates. The soil burn severity was in the moderate to higher end of moderate in those areas. The Upper Truckee River watershed, the frontal Lake Tahoe basin was about 16 percent of that watershed burned. She didn't have those numbers of proportion of low, moderate, high severity but can share them if that's of interest. The Trout Creek watershed had a higher proportion burn which is 21 percent.

Ms. Novasel assumed that there was still more to be done on Highway 50.

Ms. Williams, Forest Service said she's been coordinating with Caltrans on planning and implementing erosion control and stabilization treatments.

Mr. Coe's presentation:

(Slide 1) Mr. Coe said it's important to see what distinguishes the Watershed Emergency Response Team from the work of the BAER team. They are similar and share a lot of the same similar processes and data.

(Slide 2) The difference is that the Watershed Emergency Response Team looks at state and local responsibility area rather than federal land. Areas outside of federal jurisdiction is what they're tasked with evaluating, and their primary objective is evaluating parts of the fire that pose significant threats to life, safety, and property from post fire hazards such as debris flows, rockfalls, and flooding. Another thing that distinguishes them from the BAER team is that they are geo hazard focused. They use licensed geologists, licensed engineering geologists, and professional engineers to do their work. That's the standard of practice once you start getting onto private land. The other thing that they share in common with the BAER team is the use of these spatially explicit predictive tools to identify the likelihood and magnitude of these potential hazards. Lastly, they are not involved with suppression repair. They're just looking effects of fire on the potential for generating hazards that can impact life, safety, and property.

(Slide 3) A key part of the process is to gather all the existing data much like the BAER team they use the same soil burn severity map. They model these hazards geospatially and then go out with the team of geologists and engineers, and field validate what the model says. The models are helpful but can be wrong especially when they go outside the area where they've been generated. They use both a combination of professional judgement and modeling to identify values of risk and then develop rapid emergency protective measures. One thing that sets them aside too, is that the rainfall thresholds that were used by the National Weather Service were developed by their team. They have an explicit process where they weigh the model products with empirical data to come up with a reasonable rainfall threshold that can be implemented in an early warning system, and then we communicate our findings with the overall goal of risk reduction.

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(Slide 5) Not all fire is created equal in its ability to create runoff erosion, geo hazards like debris flows. The concept that they use to explain the likelihood that it will generate these impacts is called soil burn severity.

There is more runoff from high and moderate soil burn severity than from low soil burn severity. Their department is focused on prescribed fire which creates conditions of low burn severity. What they're trying to avoid is areas of moderate and high because those are the areas that the models are sensitive to. Most of the models that they use like the debris flow model that USGS lumps moderate and high together.

(Slide 7) This figure shows mixed conifer belts in California with the Valley and Rim Fires showing the Q-peak flow as a function of 30 minute rainfall intensity by burn severity. Green is low, yellow is moderate, and red is high. Moving from left to right represents years of post-fire. There can be orders of magnitude differences in peak flow production depending on the severity of the fire.

(Slide 8) Burn severity matters. This slide represents data coming off of first order catchments. Sediment delivery and production is a function of burn severity, rainfall intensity, and time since fire.

(Slide 9) The lion's share of the high severity, especially large patches is really on the West Slope, particularly in headwaters of the Consumnes Basin. The isolated polygon is much of the area that burned in the basin.

(Slide 10) Shows Echo Summit near the two parts of the fire perimeter are separated. It looks like that area in and around Highway 50 was burned in some cases at moderate, not a lot of high severity. There's a lot of bedrock in that area and is hard to damage soil that that is mostly rock. One of the ways they validate soil burn severity out in the field is if they see it's a lot of bedrock and very thin soils, they'll tune down the burn severity. The burn severity that comes from the remote sensing product is largely reflective of vegetative loss with some soil cover loss. Sometimes it has to be tuned especially when there are not deep soils because with lack of deep soils the amount of soil damage is less.

(Slide 13) First is to model the potential for peak flow increases. Depending on the fire they'll use a variety of different models. For this one they shared the same modeling approach that the BAER team used. The two rows at the top show Trout Creek at Pioneer Trail that they modeled for potential for peak flow increases on Trout Creek where it crosses Pioneer Trail and also the Upper Truckee River at Highway 50. At the far right of the top row is the post fire response that they boiled down to a relative increase; low, moderate, and high.

What was found when they predict runoff to those areas and that there was a relatively low likelihood for post fire flow response. Largely due to a combination of the percent of that watershed down to the outlet where they did the prediction and the burn severities. Basically it's diluting that fire signal by having a much larger watershed with an undisturbed area mixed in with it. They found about a 40 percent potential increase in the Q2, 15 percent recurrence interval of a two year flood and about a 10 percent increase for the Upper Truckee because given that watershed area relatively little that's been burned and particularly the Upper Truckee not a lot has been burned at moderate or high, roughly 5 percent of Highway 50 been burned at moderate.

(Slide 14) The BAER team and themselves used derivatives of the Watershed Erosion Prediction Project which is the numerical model that came out of Purdue University, the Rocky Mountain Research Station, the University of Idaho, and Washington State University. It's a replacement for the revised universal soil loss equation but then it's been applied to wildland areas and been extensively calibrated for fire. It's also been calibrated in the Tahoe basin mostly to gain different forest management treatment scenarios. That checks off a lot of marks; it's a process based numerical model calibrated for the basin and should give them some halfway decent numbers. The BAER team ran just the slope component using a derivative called the ERMit model, the erosion risk management tool that takes the Water Erosion Prediction Project (WEPP) model and simplifies it to only tune a couple of knobs. Their process used a fully parameterized model that was calibrated to the basin and this will have some slight differences in what the BAER team produces and what they produced using a post document from the University of Idaho.

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(Slide 15) WEPP breaks the watershed into sub watersheds and discretized this watershed into discrete hill slopes so it drained down to roughly a first or second order channel. It will assign an average rate for each of those small, discretized areas to use those values to either blow up at the watershed scale. Similarities here with what Ms. Williams showed is that the west slope of the fire showing much larger rates than the east side of the fire, particularly the areas in the Tahoe Basin.

(Slide 17) Take all those little watersheds and run a pre fire and post fire prediction and compare the difference to determine the factor increase due to the Caldor Fire. Trout Creek and the Upper Truckee River on the bottom of this table have a 2.2 fold increase in annual sediment yield for Trout Creek and a 1.2 (20 percent) for the Upper Truckee River. They modeled all the way down to Highway 50 on the Upper Truckee so there's a lot of unburned area factored into that. They're diluting the effect of the fire by averaging all the unburned area. For Trout Creek there is roughly 22 percent that burned at moderate and high. Five percent is moderate and high so you only see a 20 percent increase. That can be compared to the West Slope particularly those forks of the Consumnes River where the outlet that they modeled to was almost 100 percent burned with a very large proportion at moderate and high severity and in some cases the lion's share of high severity. That's why there's a big difference in sediment yield increases from the West slope versus the basin itself. If the model is taken down to Highway 50 and Pioneer Trail it's only predicting about a 20 percent increase max for either of those two watersheds. Models are not perfect. The way this model was calibrated it might not be super sensitive to post fire. It was calibrated for those forest treatments but it is a calibrated model that's physically based, the inner real erosion has been calibrated for post fire conditions so it is the best thing.

(Slide 18) The erosional impacts to the West Slope are going to be the highest sediment yields routed to areas close to Lake Tahoe. Highway 50 and Pioneer Trail are typically going to be less than 20 percent. The way that the model outputs are looked at this is a 30 year simulation and then average that to get average annual sediment increase. The average is going to be lowered by small years or raised by high years. The weather from the basin used was around 1990 to 2019. They believe that the impacts of the Tahoe basin are going to be relatively small compared to the rest of the fire. Because they're analyzing the whole thing, they have to focus on the greatest relative risk and in this case it's on West Slope in terms of values at risk, flooding, debris flows. The reason that they expect relatively little impacts is that proportions of moderate and high are relatively low. Looking at the watershed down to the basin it gets diluted and by all the unburned area. And there's also a preponderance of snow at that elevation at least in the modeling scenario and snow is less erosive. It will be less erosion when it's snow dominated versus rain dominated and is why there's such high numbers on the West Slope.

It's important to talk about debris flow because people are going to put a lot of the USGS debris flow maps out there. They use the debris flow model to help screening. An important note is that the model was derived and created using data entirely from Southern California and is completely different than the Sierra Nevada. Post fire debris flows are different than regular debris flows which regular debris flows are usually caused by a shallow landslide. That's usually the types of debris flows they get in the more humid part of California. In Southern California it's typically these runoff induced debris flows where the hill slopes are creating a lot of runoff then then it gets into the channel. That same process is just not as dominant here as it is in Southern California. That model is always going to show that there's much more of a problem than there is. It's important to view that model with a skeptical eye. They'll show that in their report how the model is not a great fit for the basin.

The National Weather Service has put out information for the debris flow thresholds. This is one of their products they generated using professional judgement, and a lot of the empirical data they have about post fire debris flow generation on the east side of the Sierra Crest and the West Slope. The Sierra Crest debris flow threshold requires a lower rainfall intensity in the basin than on West Slope because they were using data that suggested that on the escarpment it takes less rainfall to trigger than on the West Slope.

Post fire impacts are going to be more severe on the west side of the fire. We only have five of the values at risk in the Tahoe basin out of the 65 values at risk. Less than 10 percent of them in Tahoe basin and is because it's primarily federal land which they don't look at structures on federal land. They were primarily looking at private land. Of those five values at risk were five structures draining primarily in the Upper Truckee. Some of those small basins coming off that drain into the Upper

Truckee are going to have localized increases of runoff and erosion that may impact response. It may affect some of those structures with one having a moderate life safety, all the rest had low life safety but were mostly higher potential for property damage.

Relative to the other parts of the fire, they expect the erosional impacts to be lower and the Upper Truckee and low to moderate in Trout Creek. They recognize that Tahoe is sensitive but, in their report, they'll look at sort of relative hazard across the entire fire area. And for that reason, everything will be framed to the highest producing watersheds which are on the West Slope.

Presentation can be found at:

[Agenda-Item-No.-VII.C-Cal-Fire-Watershed-Emergency-Response-Teamor.pdf](#)

#### Board Comments & Questions

Ms. Aldean asked how the various organizations are coordinating with individual property owners in terms of choosing vegetation types that will hold the soil and minimize runoff if they choose to rebuild.

Mr. Coe, Cal Fire said since they're a fire agency they are trying to give a very granular view of hazard and risk across the fire area. If there's some low hanging fruit in terms of potential treatments, they'll specify that in their evaluation but you'll almost never see them specify soil stabilization. It's usually direct protection, things like K-rails, early warning, and the value that they provide is they take a very large fire, 220,000 acres and boil it down to single points where people can focus their attention. To minimize these hazards sometimes it takes treating very large areas with questionably effective treatments. For that reason, you almost never see them specifying hill slope treatments. They will take their information as the BAER teams does and give it to the Natural Resource Conservation Service, who has a cost share program that may allow a private landowner to utilize that cost share to do some stabilization work on their site. But that's usually very much a nuisance erosion thing which is relevant. Nuisance and erosion in the basin is a big deal because if it gets into lake it becomes more of a nuisance. They are focused on those life safety hazards such as high magnitude flooding, debris flows, and rockfalls.

Ms. Aldean asked if the BAER team is interfacing with private property owners.

Mr. Coe, Cal Fire said no, they don't. The way they work with the BAER team is that in this case, they don't want to have separate burn severity maps. They relied on their burn severity map. If there's fires on state responsibility area, they'll do the burn severity map generation but, in this case, they relied on the Forest Service. They worked closely with the Forest Service to make sure that we covered every potential value at risk and what was decided is that they would cover everything on Forest Service lands, including the leased properties, where they covered everything on private land.

Mrs. Cegavske thanked all the first responders, the police, the firefighters, and TRPA all working together.

Mr. Friedrich said he was struck by the 61 miles of dozer lines. In the heat of the battle when all the focus is on saving property and lives, how did they balance dozer lines to protect property, for example, and not overly impacting critical natural resource values that later go through this lengthy restoration process?

Ms. Williams, Forest Service said when the fire moved into the basin quickly during a wind event and most of the dozer lines were constructed within a 24 hour period, especially the lines around Christmas Valley, Fallen Leaf, Angora, and up to High Meadows. There were not resource advisors in place at that time. The decision support platform that the Forest Service uses is called Wildfire Decision Support System which includes different natural and cultural resource datasets that aid decision makers to try to avoid impacts where possible. But in the heat of the moment a lot of the priorities are shifted to just structure, property, and life protection. There's limited decisions space for avoiding areas or limiting the size of a feature. It's really based on what's going to protect those life and safety values. At different stages in the incident a week down the road, when the Caples area was still holding a lot of heat and there were more wind events, there was a little bit more time to plan out a day or two in advance. Specialists could provide more input on which ridgelines

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might have more sensitive resources in areas than others trying to avoid dozer impacts. It varies by incident and by what would the fire weather conditions are and what the fire impacts could pose. There's a lot more flexibility in the wilderness.

### VIII. APPEAL

- A. Appeal of Denial of Remand of Appeal ADMIN2021-0004 (Denial of Non-Littoral Existing Mooring Buoy), 4100 Doe Avenue, Placer County, California, Assessors' Parcel Number (APN): 085-161-014, Appeal File No. ADMIN2021-0029

Ms. Gustafson asked if any board member had ex parte communications or conflicts of interest with any party in the appeal.

Mr. Marshall said this item came to the Governing Board in May 2021. Mr. Bryan was denied at the staff level a permit for a non-littoral buoy. He then appealed that denial to the Governing Board and was heard by the Legal committee. The Legal Committee recommended that before there was any final action on the appeal that the matter be remanded, to allow Mr. Bryan to demonstrate with additional documentation that he's met all the code requirements. Mr. Bryan then provided additional information, staff examined it, and determined that he still had not made the findings necessary for TRPA staff to issue a permit. Mr. Bryan then appealed that second denial and they're back here on an appeal of a denial for a non-littoral buoy.

(Slide 3) Mr. Bryan's parcel is the turquoise one off to the left and the purple dot is the location of the buoy. This is truly a non-littoral situation. Staff's position at the legal committee was that the information did not provide authorization.

(Slide 4) 3.b.ii outlines that not only has to provide evidence that the buoy existed prior to 1972 but there was a valid authorization in addition to that. This dispute centers on whether or not there an Army Corps of Engineers grandfathering letter substitutes for authorization in this case. The committee recommended unanimously with one abstention Mr. Bryan's additional information did not provide the valid authorization, nor did the Corps letter.

Mr. Bryan said as Mr. Marshall mentioned, the cause of disagreement here is (ii). The non-littoral parcel owner provides a valid authorization from the applicable federal or state agency with jurisdiction at Lake Tahoe. It's his contention that the Army Corps letter is an authorization, it's not asking for ownership. He understands that TRPA needs him to prove that he owns it, as well. But there was no avenue to provide ownership or to register the buoy when it was existing before 1968, not before 1972 when there was no way for the owner or the developer of the property to register that buoy. That mechanism was not there and shouldn't be held in his disfavor. He also feels that the way (ii) is worded is that it's very clear it, again, it doesn't ask for ownership, but understands that's needed. He's proven that via emails, photographs, and the Army Corps letter. He believes he has a valid authorization and has met the code.

He read an email backing up the fact that he has an authorization. On page 278 of the packet, which is a letter to TRPA from Jennifer Thomason, May 18, 2021, where she states "Hello, Matt, Per our conversation a grandfather determination means that the structure(s) is/are authorized by the Corps because a structure existed prior to December 18, 1968 per 33 CFR, Section 330.3(b)." That authorizes her statement that backs up his claim." She goes on to say that "A grandfather determination does not and cannot make an assignment or transfer of ownership for a grandfathered structure. It simply represents the Corps' determination that the activity was commenced or completed prior to December 18, 1968, and therefore, does not require further permitting from the Corp under Section 10 of the Rivers and Harbors Act." He points out that this is something that's in the later Army Corps letters. It's not in his letter from 2009, but it is in the later letters to determine ownership and authorization.

Regardless, it's a two-step process that you are asking for and the code. Now you're asking for ownership and he's proven that it doesn't make the fact that he is not authorized. This letter clearly says that the buoy is authorized.

(Slide 3) Mr. Bryan's letter. The important parts of this letter are the fact that it doesn't have the disclaimer for the ownership. It's chattel, it's not real property, it's on sovereign lands, but it

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identifies his parcel and location. It also verifies the fact that we have (i) and (ii) in the code. In the third paragraph, please note that at this time, TRPA and California's State Lands Commission do not grandfather structures such as buoys in the Lake Tahoe Basin before your structure can be fully authorized. That means that the US Army Corps of Engineers has authorized it but they realize with all the litigation that was going on previously, and the shoreline act was not approved, that there was going to more than likely be a two-step process in the fact that California State Lands or TRPA could not complete (i) and (ii).

There are two other ways that his buoy is legal and entitled to a TRPA permit. First, a quote Mr. Marshall during the December 18, 2019 Governing Board meeting where he stated "The reason why 1972 is relevant is because what they're trying to do is grandfather buoys that had some legal status. If you're prior to 1972 and did not have a permit from anyone, that was a legally existing use." Someone didn't need to have a permit at that point, that buoy for all intensive purposes was legally placed. He understands the fact that they want him to prove that he owned it, that he controlled it and used it. He's done that 100 percent. The other way that his buoy should be granted a permit by TRPA is the fact that it's existing per TRPA Code of Ordinances, Definitions, 90.2. Existing, is defined as legally present, or approved on the effective date of the Regional Plan. Or, subsequently, legally constructed, commenced or approved pursuant to the necessary permits.

The Corps authorized his buoy in 2009 which is well before the effective date of the Regional Plan. He believes he's well within the law and deserving of the permit from TRPA.

Mr. Marshall said the only thing to add to Mr. Bryan's presentation is they look at the Corps letter and the email not for what it says on its face, but what is the function that it does. It's function is not to authorize this particular buoy but to essentially say that it's been in place since 1972 or actually 1968 for their purposes. Therefore, it does not need to be authorized because they had no authorization process during that time period. That provides the essential nexus that they're looking for because, as discussed in the Legal committee, another person could have applied for the same buoy. Some of the information that Mr. Bryan submitted indicated that in this area, there's lots of competing claims to buoys. What the Corps does is it doesn't make any determination that this particular property has control or owns this buoy and that's what TRPA is looking for when they apply the term valid authorization.

Mr. Bryan said that's something that they briefly touched on earlier. This is part of the Shoreline plan, you're trying to figure out who all these 4,800 buoys belong to, why can't one belong to a non-littoral owner? Especially for someone that's had their property since 1942. The subdivision was developed in 1911, that buoy belongs to someone. If there's someone else that says they own it, let's compare. Let's see if they have an authorization letter, receipts, and can tell a story of swimming off the pier with their dog to go get the boat and the dogs climbing up their back and trying to drown them. If there's something else, prove him wrong. This is exactly what the Shoreline Plan is asking. You're asking for everyone to come forward and identify the buoys.

Presentation can be found at:

[Legal Comm-Agenda-Item-No.-3 GB-Agenda-Item-No.-VIII.A-Appeal.pdf](#)

### Board Comments & Questions

Mr. Rice said as he understands it, they have proof that the buoy has been there. What does Mr. Bryan have to do to prove that it's his buoy?

Mr. Marshall said the Governing Board decided as a policy when it adopted the Shorezone code and particularly in light of making it pretty stringent for non-littoral buoy owners to get a permit, was to show that they were essentially authorized. That particular buoy was related to a particular parcel. That provides the determination that Mr. Bryan's claim to that buoy is legitimate. That's through the authorization. They believe that the Corps goes through that process when they issue their grandfathering layer. All they determine is that the buoy has been in place since at particular date, in time, 1968. From TRPA's perspective, which is not satisfied by the Corps letter. When they adopted the Shorezone Code there were discussions within the Stakeholder Committee and the question was, are they just going to have the same language that they had for littoral buoys in in the section above? Or are we going to be a more flexible and allow for authorizations whatever that might be? But they were still looking for something that authorize the placement. Staff's

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proposal and interpretation of this language, vis-a-vis the Corps letter is that this doesn't do it. They don't believe there's that many, and can't think of something that's not a permit, or somebody calls a permit or a lease, then that might satisfy it. But there might be something out there, and they didn't want to foreclose either something that went through the same process, but it's not called a permit.

Mr. Bruce asked if that was during the drafting of the Shoreline ordinances.

Mr. Marshall said correct.

Ms. Aldean said the Corps letter is less than perfect because they refer to Mr. Bryan's property as appearing to have one buoy in place since 1968. They probably shouldn't have stated it in that manner. She doesn't believe that there's any evidence in the Corps possession that linked this particular buoy to that particular piece of property. She asked Mr. Bryan how he came to own this buoy, was it in the chain of title? Normally there would be a bill of sale referencing the deed. Explaining the location of the buoy and transferring ownership from one owner to the next. Is there anything in the chain of title that identifies you as the recipient of the buoy in question?

Mr. Bryan said the buoy was placed before there was any way to track it, or any permit to be had. His house was built in the 1940s. The neighbor that they bought the house from had two parcels. The other one was before the forties and each one had a buoy; the buoy came with the house. But the Corps does make the tie, they identify his parcel and tie it to the buoy, which is identified in the aerial photograph he provided them with along with the GPS coordinates.

Ms. Aldean asked if there was a bill of sale from the previous owner of his property identifying this buoy as chattel, which is being transferred to the new owner.

Mr. Bryan said not that he's aware of. His parents purchased the house and he inherited the home from them. He believes that the Corps asking for his deed makes that tie. It's been documented.

Ms. Aldean said she doesn't know that they're in a position to make that connection. Who owns the property that's landward of this buoy?

Mr. Bryan said directly in front of his is the O'Neal's. The two buoys that are landward of it are both non-littoral as well.

Ms. Aldean asked if he's approached them about giving him a lease or authorization to use their Assessor's Parcel Number for purposes of identifying the buoy spatially and then assigning it to him.

Mr. Bryan said no.

Ms. Aldean said there's similar circumstances where a buoy is off of a non-littoral piece of property but either its use is given to a non-littoral property owner by virtue of having an agreement with the homeowners association or they have the permission of the littoral property owner to use that buoy. That may be the better approach to take.

Mr. Bryan said he hadn't thought of it in that way. His understanding that even their buoys are not tied to their property, they only own to the low waterline and don't own state lands, it's sovereign land.

Ms. Aldean said it's a lot to prove up a buoy if you actually own the property that is landward of that buoy. He could make application to the necessary agencies to prove up the ownership of those buoys and future use. They should make application to preserve their right to use the buoys that are lakeward of their property otherwise if they're not permitted, they could be removed.

Mr. Bryan said both of them are permitted. Earlier they discussed the fact that he belonged to a homeowners association and that HOA has littoral access. Therefore, through the HOA he has it as well.

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Ms. Aldean asked if they have a defined buoy field or are they proposing to put all these miscellaneous buoys in one field.

Mr. Bryan said they're under permit through TRPA.

Ms. Aldean said the best avenue in her opinion is to work through the association to gain exclusive use of that buoy.

Mr. Bryan said he'll look into it.

### Public Comments & Questions

None.

### Board Comments & Questions

Mr. Yeates made a motion to grant the Appeal which motion should fail in order to affirm the staff decision.

Nays: Ms. Aldean, Mr. Bruce, Mrs. Cegavske, Ms. Faustinos, Mr. Friedrich, Ms. Gustafson, Ms. Hill, Ms. Novasel, Mr. Rice, Ms. Williamson, Mr. Yeates

Absent: Mr. Lawrence

**Motion failed.**

## IX. REPORTS

### A. Executive Director Status Report

Ms. Regan said a special edition of the Tahoe In Depth about the Caldor Fire has been published. She's proud of the team for pulling this paper together with their partners in the Tahoe Fire and Fuels Team, the US Forest Service, Cal Fire, and a number of other partners.

Tahoe is ahead of curve for communities across the country, in the restoration work that they're doing. There's been recent announcements about roughly \$100 million of that is flowing into the Tahoe basin over the next 5 to 6 years largely from the Southern Nevada Public Land Management Act. About \$60 million is for fire health, forest fuels reduction, and forest health treatments. There's also substantial monies from the State of California and the State of Nevada, and other restoration dollars for watershed restoration and a number of other programs.

They'll continue to lean on the partnership in the face of all these challenges, and there's more of that in the quarterly report as well. Also contained in the quarterly report is a summary of some of TRPA's new staff. It takes all of them to work to the betterment of Lake Tahoe. Also, in addition to what's mentioned, there is a new planner, Jacob Stock who'll be starting in a couple of weeks.

A lot of you have been working with them in tandem on the Tahoe Transportation Funding Initiative. They did not have a committee meeting on the Environmental Improvement, Transportation, and Outreach Committee because they're working with the partners at the Tahoe Transportation District on a white paper that they'll be bringing back in November looking at the pros and cons of various revenue strategies, to fund the Regional Transportation Plan. Then a plan to get to consensus, which includes reconvening the bi-state consultation on transportation. Initially, Secretary Crowfoot and Director Crowell in Nevada had convened that group who are both on their way to the Climate Change Conference (COP26) in Glasgow, Scotland.

#### 1) Quarterly Report: July – September 2021

No further report.

### B. General Counsel Status Report

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Mr. Marshall said Gregory Garmong appealed the dismissal of his case regarding the longstanding litigation over the cell tower across from Skyland. It will now go to the Ninth Circuit Court. They're hopeful that they may be able to negotiate something and will have to continue to litigate it the Ninth Circuit on that dismissal.

Also, they were recently sued although the case has not been served by Michael Harrosh. There was an appeal a couple of months ago regarding a new single parcel pier that was on a parcel adjacent to a parcel that Mr. Harrosh owns which has a pier. That lawsuit was filed in Federal Court in Sacramento. Please contact him if you'd like a copy of that.

X. GOVERNING BOARD MEMBER REPORTS

None.

XI. COMMITTEE REPORTS

A. Local Government & Housing Committee

None.

B. Legal Committee

None.

C. Operations & Governance Committee

None.

D. Environmental Improvement, Transportation, & Public Outreach Committee

None.

E. Forest Health and Wildfire Committee

None.

F. Regional Plan Implementation Committee

None.

XII. PUBLIC INTEREST COMMENTS

None.

XIII. ADJOURNMENT

Ms. Novasel moved to adjourn.

Chair Mr. Bruce adjourned the meeting at 4:38 p.m.

Respectfully Submitted,



Marja Ambler  
Clerk to the Board