USHPA RISK ASSESSMENT WORKSHEET

Hang Gliding / Paragliding Site

The United States Hang Gliding & Paragliding Association • www.ushpa.aero • info@ushpa.aero

Flying Site Name:	Lookout Mountain / Mount Zion		
Site Location: *(Closest City, State)*	Golden, CO	**Annual/ Last Assessment Revision Date:**	16 Jan 2019
Primary Launch GPS Coords: *(DD.DDDD, -DD.DDDD)*	39.7460, -105.2407	Primary LZ GPS Coords: *(DD.DDDD, -DD.DDDD)*	39.7501, -105.2301
Site Requirements: *examples: H3, P3, H3 w/ CL*	H3/P3 (with sponsorship and 10 sponsored flights); H4/P4/M2 (observer/sponsor walk through and site brief, 1 sponsored flight –H4); Local or Visiting M1 or Local P2 (extensive restrictions—see site guide)		
Site Type: *examples: Coastal Cliff, High Alt, Mt Thermal, Eastern Ramp*	High Alt, Mt Thermal, Restricted Ldg		
Site Guide Link: *https://www.link.com*	http://www.rmhpa.org/lookout-site-guide/		
Site Guide Review Login: *(if protected)*		Site Guide Review Password: *(if protected)*	
Chapter #:	21		
Chapter/Club Name:	Rocky Mountain Hang Gliding and Paragliding Association		
Name of Safety Coordinator:	Ed Williams, Tavo Gutierrez, Ben DeVoti		

USHPA Risk Assessment Worksheet - Hang Gliding/Paragliding Flying Site

Name of Site Coordinator: *(for chapter)*	Gary Vaillancourt

For Risk Management Information & Process Instructions see: START HERE: USHPA RISK MANAGEMENT PROGRAM

Quick Risk Management Plan Steps outline:

1. Review the **Chapter Risk Management Training Videos & Training Materials** on **http://ushpa.vizigy.com**
2. Create / Update **Chapter Managed Sites and Site Locations List Table**
    a. Update **Chapter Managed Site Additional Insured Landowner Table** and associate to Site Locations
3. **Create Site Maps** to be used in this assessment and Site Guides. Site Maps to include the setup, launch, teardown and landing areas, including use zones & measurements (to compare to guidelines) and include in Risk Assessment & Site Guide document.
4. **Risk Assessment and Mitigation** sections of Worksheet: Identify all possible risks. Evaluate from the perspective of spectators, visiting pilots, inexperienced and experienced pilots. Analyze all risks and determine the vulnerabilities.
    a. **Note significant risks under Risk Detail and Risk Assessment**.
    b. For each risk noted, **determine steps, actions, signs if necessary to mitigate the risk and document under "Risk Mitigation."**
5. **Create Risk Mitigation Plans** in section of this worksheet for actions to be implemented if not in place and follow-through on any actions or other mitigation activities identified in your Risk Assessments and Action Plan, such as signage or preventative measures.
6. **Create / Update Site Guide** and update rules/regulations/protocols /site guides to be reflective of risks.
7. **Communication**
    a. **Publish your Site Guide** and any rules/regulations/protocol guides, so all users of the flying site are aware of them
    b. **Publish your Risk Management Plan** to be available to Chapter Members
8. **Accident Investigations and feedback** findings to your Risk Assessment Worksheet & Site Guide if actions are required
9. **Submission – Upload during Chapter Application/ Renewal** (Annually) or send directly to USHPA or RRRG contact for updates after upload

Site Maps and Use Zones:

http://www.rmhpa.org/lookout-site-guide/

Also see Paraglider and Hang Glider Walk Through Guides in the Documents Section of the Site Guide

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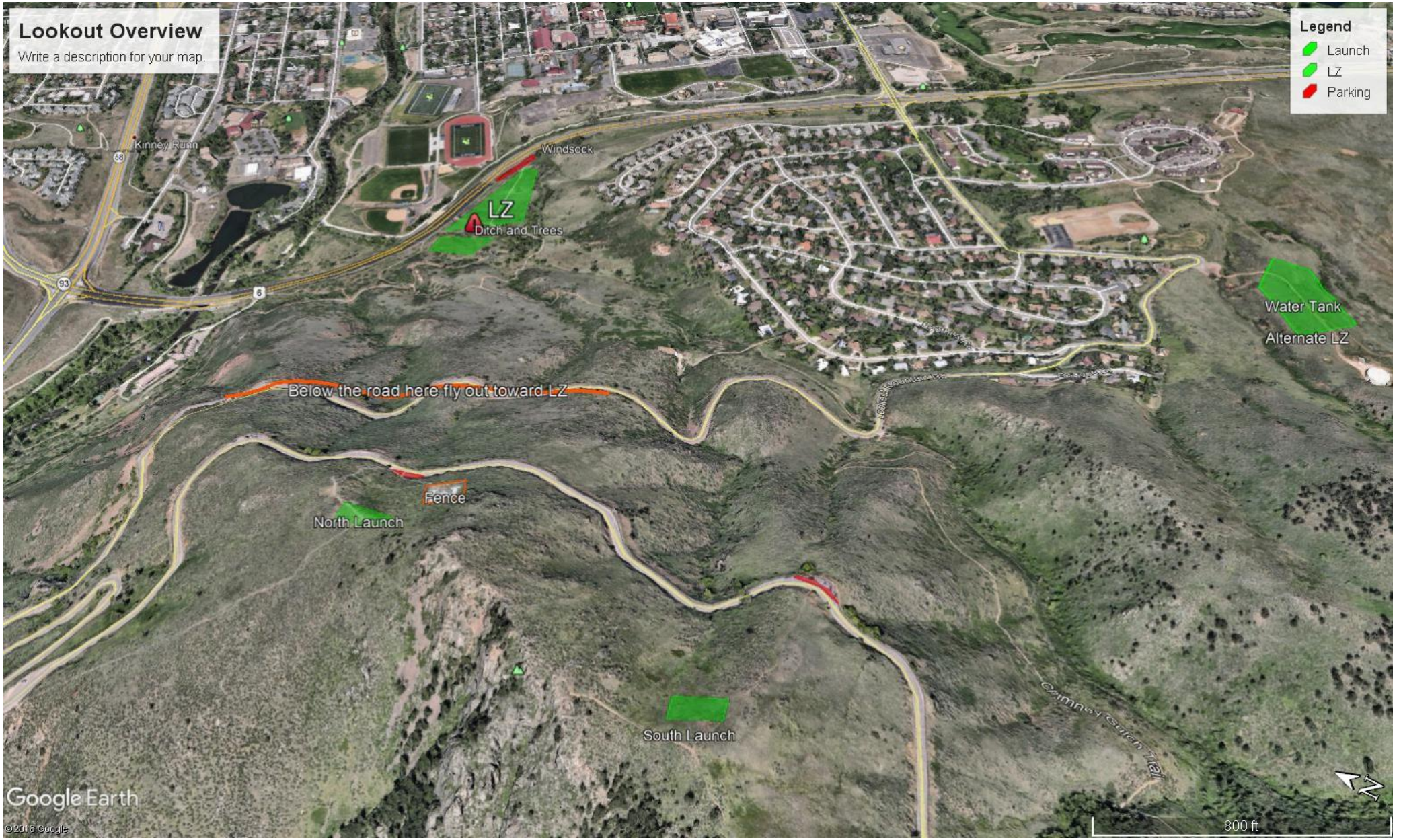

USHPA Risk Assessment Worksheet - Hang Gliding/Paragliding Flying Site

(000 - Flying Site Name) Lookout		Review/ Revision Date 16 Jan 2019
Risk Identification **(Examples – Feel free to identify your own!)**	**Risk Detail & Risk Assessment**	**Risk Mitigation**	**Sign Off**
Road or Trail Access ● What type of road access is there (4WD, paved, public, etc.)? ● What type of trails are used to access site features? ● Are roads and trails used to access the site secured using gates or locks? Should they be? ● Does access to roads/trails need to be restricted or monitored? ● Are there potential conflicts between pedestrians and vehicles (pilots or spectators)? ● How do emergency vehicles access site areas? ● Is signage needed? ● Have there been any incidents or accidents involving vehicles at this site?	Paved road access to launch and LZ. Short hike to launch area from parking locations. Parking is limited at both the North and South Launches so try to carpool as much as possible and work together to get cars back down the mountain—use the Lookout WhatsApp Chat to help coordinate. To drive, take Lookout Mountain Road off of Highway 6. Lookout Mountain Road can be very busy with bicyclists, runners, hikers, long-boarders etc. Drive slowly and don't pass bikes as you are approaching blind turns—other bicyclists and traffic may be descending rapidly. For the South Launch drive slightly around the curve to clear for downhill traffic before crossing the downhill lane to park on the east side of the road. Make sure you are parked completely clear of the road at both launches. Do not leave valuables in your car.	New flyers are briefed during their site walkthroughs.	
Vehicle Parking Area ● Is there a designated parking area for vehicles? ● What is the clearance between vehicles and: ○ Setup? Are gliders in setup area secured? ○ Launch? ○ Landing area? ○ Teardown area? Are gliders in teardown secured? ➔ If any clearance is less than 50 feet, mitigation should be described ● Are tie-downs needed? ● Is signage needed? ● Have there been any incidents or accidents involving vehicles in the parking area at this site?	Parking is not immediately proximate to the launch or LZ.	Tie downs are available on the north launch which is the primary launch used by hang gliders.	

Spectator Areas ● What is the clearance between spectators and: ○ Setup? Are gliders in setup area secured? ○ Launch? ○ Landing area? ○ Teardown area? Are gliders in teardown secured? ➔ If any clearance is less than 50 feet, mitigation should be described ● Are tie-downs needed? ● Are spectators allowed in areas with gliders without an escort? Should they be? ● How are spectator limitations communicated and enforced? ● Are barriers needed? ● Is signage needed? ● Have there been any incidents or accidents involving spectators at this site?	For spectators, mainly public trail users, spectators are kept away from use areas. Clearance >50 is easily achievable and pilots are encouraged to allow spectators, but to explain to them where to view from and the importance of staying clear of use areas.	Respectful and thoughtful communication between pilots and spectators. A sign is also posted to direct spectators away from the launch area. The public trail in the vicinity of the main LZ keeps spectators clear of the main landing area.	

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Potential Obstacles ● Which potential obstacles are present at the site: ○ wires ○ towers ○ lake or river ○ ocean ○ forest or trees ○ large rocky areas ○ other ● What is the clearance between potential obstacles and: ○ launch? (50 feet) ○ landing area? (100 feet) ○ planned flight path? (75 feet) ➔ If any clearance is less than noted distance, collision avoidance mitigation should be described ● Is the clearance sufficient? ● Are potential obstacles marked? ● Is signage needed? ● Have there been any incidents or accidents involving overhead obstacles at this site?	Launch area obstacles: Trees, scrub and rocks below launch, fenced area and power line well to the right/south of the north launch. Landing area obstacles: Fences near LZ. Detention pond and small detention pond wall, highway, cars parked near highway, ditch west of main LZ landing area Clearances: Launch: rocks and oak brush (in proximity) fences: >150' trees: > 150' LZ: Fences: > 100' Parked Cars Highway: > 50' to 200' + depending on which portion of landing area Trees on border of 600' by 100'/300' LZ Clearances are sufficient, obstacles are obvious, no flight path obstacles.	Have site mentor do a walk-through with new pilots For returning pilots, walk full LZ and launch areas. Before every flight, conduct a flight-plan review taking into account obstacles Steer clear of obstacles and be aware of the danger of object fixation. Understand density altitude and how it affects launch and landing characteristics (HA endorsement required). Do not fly alone. Extensive sponsor program for new pilots because of the site conditions and restricted landing zone.	

Launch Areas ● What is the clearance around the take-off area: ○ in front (for solo pilots)? (50 feet) ○ in front (for tandem pilots)? (75 feet) ○ behind? (30 feet) ○ to the sides? (30 degrees) ➔ If any clearance is less than noted, collision avoidance mitigation (for obstacles or spectators) should be described ● Are there ground obstructions (trip/fall hazards)? ● Is the launch area clearly marked? Does it need to be? ● Are there appropriate/adequate tie-downs? ● Are the site regulations and launch requirements clearly communicated to all pilots and spectators? How? ● Are there launch assistant qualifications and equipment guidelines communicated? How? ● Are spectator areas delineated and communicated? How? ● Is signage needed? ● Are there First Aid – First Responder resources? ● Have there been any incidents or accidents involving obstacles, obstructions, vehicles or people on launch at this site?	Clearance for take-off obstacles is >100' and >90 degrees Slip/trip/fall hazards are present due to native environment	Walk intended and backup takeoff paths. Site regulations are posted on the RMHPA Site Guide and communicated to pilots during site walkthroughs and introductions. Cellular coverage is available. Launch is clearly marked and obvious. Emergency medical response is available from Golden, CO.	

Landing Zones ● What is the clearance around the landing area and: ○ ground personnel ○ vehicles ○ structures ○ active roads/trails ○ spectators ➔ If any clearance is less than 50 feet, collision avoidance mitigation should be described ● Are there ground obstructions (trip/fall hazards)? ● Is the landing area clearly marked? Does it need to be? ● Are there appropriate/adequate tie-downs? ● Are the site regulations and landing requirements clearly communicated to all pilots and spectators? How? ● Are spectator areas delineated and communicated? How? ● Are there guidelines regarding ground handling (kiting) in the LZ area? ● Are there appropriate wind indicators? ● Is signage needed? ● Are there First Aid – First Responder resources? ● Have there been any incidents or accidents involving obstacles, obstructions, vehicles or people in the landing area at this site?	Slip/trip/fall hazards are present due to native environment Landing zone has some slope in places with undulating terrain. Due to density altitude, approaches can go long. Lift, sink and turbulence are often encountered midday. There is a major road, fences, trees and power lines in the vicinity.	Site regulations are posted on the RMHPA Site Guide and communicated to pilots during site walkthroughs and introductions. Cellular coverage is available. The LZ, and backup LZs, are not clearly marked, but obvious. Signage not allowed on USFS property. Emergency medical response is available from Golden, CO. Understand density altitude and HA endorsement required.	

Other Activities in Area ● Is the site open to the general public? ● Do other activities occur in the same area? Such as: ○ radio controlled (RC) aircraft ○ model rocketry ○ skeet shooting ○ kite flying ➔ If any other activity occurs, mid-air mishap mitigation should be described ● Is signage needed? ● Have there been any incidents or accidents involving other activities at this site?	General public can access the launch and LZ areas, but there is plenty of space for pilots to keep clearance from spectators.	Pilots will communicate with spectators to keep them clear of launch area. Sign on North Launch indicating pilots only beyond this point.	
FAA Recognition and Communication ● Are there other flight operations in the area? ○ general aviation ○ commercial aviation ○ agricultural aviation ➔ If any other flight operations occur in the area, interference mitigation should be described ● Has the local FAA office been advised in writing of glider flight activities? ● Are NOTAMs published for this site? ● Are there conflicts with Terminal Controlled Flight areas (TCA)? ● Are there potential conflicts with general aviation airports and landing patterns (non-controlled)? ● Are all tandem and towing operations in compliance with FAA rules and regulations? ● Have there been any incidents or accidents involving FAA non-compliance or other flight operations in the area of this site?	With the proximity to Denver's Class B there is a possibility for VFR general aviation traffic. Sled rides should be low enough to avoid most conflicts. Thermal flights above launch altitude could encounter general aviation traffic.	During walkthroughs, pilots are informed about the airspace. Lookout is in class G airspace up to 700' above the surface, above 700' it is Class E airspace. Lookout is directly to the west of Denver's Class B Airspace. The nearest layer of Denver's Class B airspace is 7 NM to the east from 8,000-12,000' MSL. The proximity of Lookout to the major metropolitan area of Denver means there is a high potential for VFR traffic, to include helicopters, to fly in close proximity—we must see and avoid—360s may be useful to help make you more visible to other aircraft. Generally, if you are over the front range you are clear of airspace but be aware of Boulder Jeffco Airport's Class D airspace if going cross country north and the Corner of Denver's Class B if headed south and high in the vicinity of Waterton Canyon and the Lockheed Facility. See SkyVector if unsure of the airspace	

Organized Events ● Does your Chapter have any organized events at this site? Such as: ○ club meetings, picnics or parties ○ fly-ins or demo days ○ ACE events or sanctioned competitions ○ public demonstrations ● Is there a Flight Safety Coordinator designated for all flying events? ● Are spectator areas and vehicle parking areas clearly defined, designated and enforced? ● Are recommended clearances between flight operations and spectator areas marked, maintained and enforced? ● Are tie-down systems available and in-use for organized events? ● Are flight simulators or other demonstration equipment under direct supervision at all times until disassembled? ● Are First Aid – First Responder resources on site and available? ● Have there been any incidents or accidents during organized Chapter-sponsored events?		Organized events have not occurred nor, at this time of this submittal, are known to occur in the future at this Site.	

Safety Officer (Annual Review) ● Do your Bylaws clearly define the responsibilities of the Safety officer (can be a Director, Coordinator, or other titles)? Such as: ○ Risk Assessment and Risk Mitigation Plan ○ Incident Reporting process and follow-up ○ Oversight of Site-Event Management Plans ○ Access to historical data for informing site guidelines and rules ○ Authority to close a site due to hazardous conditions or situations ○ Authority to restrict flight operations of a single pilot if necessary to avoid potential accidents ● Does your Chapter have a copy of USHPA's **Risk Management Plan Program with Appendix A, Recommended Operating Guidelines**? ● Does your Chapter have appropriate documentation in place for: ○ Risk Mitigation Plan ○ Incident Reporting ○ policy/procedure to close a site due to hazardous conditions or situations ○ policy/procedure to restrict flight operations of a single pilot if necessary to avoid potential accidents		Yes, chapter bylaws included Safety Officer and Flight Director responsibilities, including reviewing and updating risk management plans, incident reporting, open access from pilots, site regulation changes and authority, and imposing flight restrictions. Yes. Documentation is maintained. The Chapter Secretary is planning to visit all Chapter managed sites this year to review and update Google Earth Pro LZ obstacle photos with inputs from the local site experts/coordinators.	

Information Communication ● Are flying site rules and guidelines clearly and appropriately communicated? This could be through one or more of the following: ○ website ○ video ○ signage on site ○ paper hand-outs ○ designated members (site administrator, sponsor, guide) ○ other ● Are flying site parameters and protocol clearly and appropriately communicated (to spectators and pilots) through signage, physical markings, barriers, etc.? ● Is contact information for the chapter site coordinator available at the site? ● How can members and spectators provide input and suggestions to the site management team? ● How is the Emergency Action Plan communicated? ● Have efforts been made to claim ownership of internet information with pointers back to your Chapter as the primary information source that takes precedence if on Google Maps, Paragliding Map, Paragliding Earth, or other online site guides?		Yes, site guidelines and process are communicated to the RMHPA membership via email, social media, and an updated website Site Guide. In the chance spectators are present, pilots are encouraged to communicate with them on spectator safety hazards, where to view, and where to keep away from. Site coordinator information will be included on the updated Site Guide. Members and spectators are encouraged to contact any RMHPA officer with input or questions. Officer information is included in the RMHPA website. Ownership claim has not been initiated The Lookout Site Guide is being updated and rewritten to more clearly communicate relevant information.	

Experience & Skills required to fly the site safely ● List the pilot skill sets required to fly the site safely. ● **Does the site require a specific pilot proficiency rating / special skills? Cliff, ramp launch, thermal, turbulence, . . .** ● Is USHPA membership & ratings required to fly at this site? ● Each site should have recommended or required USHPA ratings ● Do the site ratings reflect the launch and landing zone requirements? ● Why did Site receive the rating? (Is the site a Green Circle run or a triple Black Diamond and why it was rated that) ● How are pilot rating/special skill requirements verified? Some possible methods: ○ sticker ○ text message (719-387-4571) ○ website (ushpa.org/m/#####) ○ PDF USHPA or Chapter Member card ○ designated members (site admin, sponsor) ● How is site access limited to only those pilots with a verified appropriate rating/special skills? ○ all members ○ designated members (site administrator, sponsor, guide) ○ other ● How does the chapter encourage and enable appropriate pilot experience for flying at this site? ● Does training take place at the site? If so, are USHPA training guidelines followed?	H3/P3 (with sponsorship and 10 sponsored flights); H4/P4/M2 (observer/sponsor walk through and site brief, 1 sponsored flight –H4); Local P2 (extensive restrictions—see site guide).	The Site is insured, therefore USHPA membership and appropriate ratings are required. Site ratings do reflect the pilot requirements during morning and evening flights and/or when thermic conditions and environmental hazards are not present. For mid-day conditions, H3/P3/M2 or higher, is recommended. USHPA membership/rating is verified by email, in-person cards, and/or txt message verification to USHPA. Training and mentoring do occur at the Site.	

Emergency Action Plan ● Is the site Emergency Action Plan documented and communicated? Example methods: ○ website ○ signage on site (launch and LZ) ○ paper hand-outs ○ designated members ● Is there a documented protocol for filing incident reports? ● Have local emergency responders been notified of flying site location and methods of access? ● What first responder resources are available on-site? Some possible options: ○ first aid kit ○ direct phone numbers of emergency services ○ landline telephone (e.g., pay phone) ○ no-fly tarp/flag ● Does the chapter sponsor First Aid and CPR training for members? How often? ● Have there been any incidents or accidents at this site using your Emergency Action Plan?	An EAP is published on the website and briefed annually at a Chapter Meeting.	An EAP is published on the website and briefed annually at a Chapter Meeting. A generic EAP, developed with reference to USHPA's online training material, is included on the Chapter website and briefed at a Chapter meeting annually. Specifics for individual sites are included in the individual site guides. Our Chapter conducted first responder training in 2018.and will sponsor additional First Responder and CPR classes if pilots are interested.	
Tandem Flying ● How is compliance with the USHPA FAA Tandem Exemption monitored and enforced? ● Are all participants issued a 30-day student membership, or confirmed to possess a current USHPA membership? ● What is the clearance around the take-off area: ○ in front (for tandem pilots)? (75 feet) ○ behind? (30 feet) ○ to the sides? (30 degrees) ➔ If any clearance is less than noted, collision avoidance mitigation (for obstacles or spectators) should be described ● Have there been any incidents or accidents involving tandems at this site?		Tandem operators must meet USHPA requirements to fly at Lookout	

Towing ● If towing operations occur at the site, indicate all types: ○ aircraft ○ boat ○ scooter ○ static line ○ truck ○ winch ○ other ● List each towing vehicle used (Year, Manufacturer, Make, Model, Owner) ● Does every tow operator have the relevant USHPA towing appointments? ● Is there a written schedule for maintenance of all towing equipment and associated line and hardware? ● Does the Chapter verify that the towing equipment maintenance is up-to-date? ● Are there towing-specific risks at this site? For example: ○ fuel storage ○ equipment maintenance ○ licensing of operation ○ site access ● Is the clearance around the towing area sufficient: ○ in front? ○ behind? ○ to the sides? ○ overhead? ● For aero-towing operations: How is compliance with the USHPA FAA Towing Exemption monitored and enforced at the site? ● Have there been any incidents or accidents involving towing at this site?	N/A		

Glider Tie Down Systems ● Are glider tie-down systems needed at this site (in either the setup or teardown areas)? Possible reasons to require: ○ dust devils ○ gusty winds ○ insufficient clearance from vehicles ○ insufficient clearance from spectators ● If tie-downs are available, how are they communicated to pilots? ● If tie-downs are available, how are pilots encouraged to make use of them? ● Have there been any incidents or accidents involving loose gliders at this site?		Available on North Launch the launch primarily used by hang gliders.	

Environment & Other Risk Considerations ● What are the Minimum & Maximum allowed winds and maximum gust factor for the site? Explanations should be included if these numbers are high for the industry. ● Are there any other risks or hazards associated with this site or XC from this site? For example: ○ man-made risks ○ natural hazards ○ environmental risks ○ external events/forces ○ weather conditions ○ known venturi & rotor zones ○ potential risks of impact ○ vulnerability ○ Time of year and time of day hazards ○ Other risks typically included in site briefings ● Are there any possible risks due to local response? ● Are there preventative measures that can be implemented immediately? ● Have there been any incidents or accidents in the past at this site? If so, what actions, systems, communications, etc. could have mitigated those outcomes? ● Have there been any incidents or accidents in the past Year that warrant hazard updates to the Site Guide? ● List any facilities owned by the chapter at this site (such as clubhouse, storage shed, wind sock tower, launch ramp, towing equipment)	There are no minimum wind speed nor gust factors for the Site. Maximum winds are commensurate with ratings required for this site: H2/P2/M2 and H3/P3/M3 for mid-day conditions. Mountainous weather is the primary flight-related hazard associated with this Site, and includes: Wind velocity Turbulence Compression and venturi effects Thermic conditions Thunderstorm development Gust fronts Quickly changing conditions	Weather-related risk mitigation tactics include: Operating with rating limitations Site mentorships and site walkthroughs Understanding, reviewing, or being trained/mentored in wind judgement and compression effects, topographic and terrain-induced amplification of weather, thermal knowledge and skills to deal with high altitude thermic conditions and how to recognize ramping, wind shear knowledge and forecast review, knowing where nearby wind talkers are located, understanding thunderstorm lifecycle and recognizing hazardous conditions, having the flight skills to manage your aircraft including turbulence techniques and how to descend and land quickly when conditions build, recognizing changing conditions and landing quickly.	

Mini / Speed Wing Provisions & Associated risks ● Are Mini/ Speed Wings flown at your site? ● Do you have Mini/ Speed Wing provisions in your site protocols? ● Provisions or Restrictions to consider: ○ Required Glide Ratio from each Launch to each LZ ○ Quantifiable terrain clearance limits to experience level. ○ Acceptable flying conditions in conjunction with terrain clearance protocols including acceptable times of day to the season. ○ Restrictions on Low Acrobatic Flying / Low Barrel Rolls / Swooping ○ Distances from other pilots, observers, vehicles, structures, and other obstacles or areas ● Are there any other Mini/ Speed Wing risks or hazards associated with this site? ● Have there been any Mini / Speed Wing incidents or accidents in the past Year that warrant hazard updates to the Site Guide?	Mini wing pilots sometimes soar other sites (especially coastal sites) in high winds. However, because of the rapidly changing and at times unpredictable nature of the weather/winds combined with the topography at our high mountain sites, high wind soaring is not recommended.	Mini/speed wings are flown at the Site, which requires an M2 rating. Obstacle clearance is a non-issue for mini/speed wings; the terrain in flight path is native grass with a few outcroppings of oak brush, trees to the left and right of the primary flight paths. The Site is favourable to mini/speed-wing activities, especially during winter mornings and evenings. Lookout is normally thermic mid-day, the best mini wing flying occurs mornings and evenings when the thermals have subsided leaving smooth air. Use wind direction to determine best launch site, if you are not sure ask. Watch out for the highway and powerlines, allow adequate separation from terrain. You should be heading to the Main LZ prior to dropping below rock pile near the mountain's base. Be aware of large ditch and trees prior to Main LZ. Recommend wings with 6:1 glide ratio minimum.	
Annual Incidents & Accidents Review ● # of Incidents this past Year ___**0**____ ● # of Accidents this past Year ___**0**____ ● Has your Chapter Reviewed Accidents in this past year and prior years to determine if actions are required?		We are constantly reviewing safety protocols and procedures and how best to communicate all of that to our member pilots. Accidents and incidents are briefed at Chapter Meetings (when possible by the pilots involved). Lessons learned and takeaways for the future are discussed. Summaries of these accident and incident debriefs are included in Meeting Minutes on the Forum. It is our constant effort to keep the mentorship environment high for new pilots	

Risk Mitigation Plan Activities - to be implemented/ work in process

Risk Mitigation Plan Activities	Responsible Coordinators	Project Start	Est. Completion
Update RMHPA site guide	Webmaster	ASAP	Complete
Safety Coordinator and Secretary Site Visits	J. Hildebrand & Scott Drinkard	Feb 2018	Complete
Add EAP brief and plan to the Chapter Website	Jake Hildebrand	Feb 2018	Complete
Update Hang Glider Video	Tavo Gutierrez	Dec 2018	Jun 2019
Update RAW and Site Guide Photos with Google Earth Pro (LZ obstacle survey to add to existing photos)	Scott Drinkard	Jan 2019	Aug 2019
Update Paraglider Video	TBD		TBD

Site Locations:

Attach & upload Chapter Managed Sites and Site Locations Table