

## 8.5 Site-specific analysis of camp management options

Table 3 Analysis of management options; definitions and descriptions of each management option are provided in Section 8. \$ = Low cost (<\$10,000); \$\$= Moderate cost (\$10,000-\$99,000); \$\$\$ = High cost (i.e. >\$100,000).

Management option	Relevant impacts	Cost	Advantages	Disadvantages	Site-specific detail and actions
<b>Level 1 actions</b>					
Education and awareness programs	Fear of disease Noise Smell Faecal drop	\$	Low cost, promotes conservation of FFs, contributes to attitude change which may reduce general need for camp intervention, increasing awareness and providing options for landholders to reduce impacts can be an effective long-term solution, can be undertaken quickly, will not impact on ecological or amenity value of the site.	Education and advice itself will not mitigate all issues, and may be seen as not doing enough.	Kempsey Shire Council will provide educational material on its website, and links to other relevant information. Council will also continue to consult directly with affected community members to ensure they understand the actual (low) risk, seasonal patterns, and are aware of measures to mitigate risk and impacts.  Interpretative signage will be considered for Rudder Park and Riverview Park.  The potential to promote viewing the fly-out from Riverview Park will also be investigated, which as a tourist attraction would benefit the local community. For example, since 1984 Batty Boat Cruises have been run regularly for tourists to watch flying-foxes leave their roosts from the Brisbane River.
Property modification / service subsidies	Noise Smell Faecal drop Health/wellbeing Property devaluation Lost rental return	\$-\$\$	Property modification is one of the most effective ways to reduce amenity impacts of a camp without dispersal (and associated risks), relatively low cost, promotes conservation of FFs, can be undertaken quickly, will not impact on the site, may add value to the property.  Subsidising services (e.g. cleaning) may also encourage tolerance of living near a camp.	May be cost-prohibitive for private landholders, unlikely to fully mitigate amenity issues in outdoor areas.	Council will ensure nearby residents are aware of ways to modify property that will both increase property value and reduce impacts from flying-foxes.  Council will also investigate the feasibility of a subsidy program to assist nearby residents and business with property modification, services (e.g. cleaning), rate reductions, or other assistance (e.g. car covers, clothes line covers, free pressure cleaners hire, etc.).

Management option	Relevant impacts	Cost	Advantages	Disadvantages	Site-specific detail and actions
Routine camp management	Health/wellbeing	\$	Will allow property maintenance, likely to improve habitat, could improve public perception of the site, will ensure safety risks of a public site can be managed. Weed removal has the potential to reduce roost availability and reduce numbers of roosting FFs. To avoid this, weed removal should be staged and alternative roost habitat planted, otherwise activities may constitute a Level 3 action.	Will not generally mitigate amenity impacts for nearby landholders.	Properties can be maintained provided actions are not aimed at disturbing the camp. Intentional disturbance without a licence from OEH is a breach of legislation and may be prosecuted.
Alternative habitat creation	All	\$\$- \$\$\$	If successful in attracting FFs away from high conflict areas, dedicated habitat in low conflict areas will mitigate all impacts, promotes FF conservation. Rehabilitation of degraded habitat that is likely to be suitable for FF use could be a more practical and faster approach than habitat creation.	Generally costly, long-term approach so cannot be undertaken quickly, previous attempts to attract FFs to a new site have not been known to succeed.	Council will investigate the potential for staged bamboo removal, in combination with planting fast-growing, suitable roost trees away from adjacent residents.  This would form part of a long-term approach to management, as sufficient roost habitat must be available at all times to ensure flying-foxes are not displaced to neighbouring residences.  The aim of such habitat creation is not to have a net increase in roost space (and potential flying-fox numbers) but to incrementally replace exotic bamboo at the site.
Provision of artificial roosting habitat	All	\$\$-\$\$	If successful in attracting FFs away from high conflict areas, artificial roosting habitat in low conflict areas will assist in mitigating all impacts, generally low cost, can be undertaken quickly, promotes FF conservation.	Would need to be combined with other measures (e.g. buffers/alternative habitat creation) to mitigate impacts, previous attempts have had limited success.	This option may be considered as part of a long-term strategy to replace exotic bamboo, however is not being considered during the life of the Plan.
Protocols to manage incidents	Health/wellbeing	\$	Low cost, will reduce actual risk of negative human/pet-FF interactions, promotes conservation of FFs, can be undertaken quickly, will not impact the site.	Will not generally mitigate amenity impacts.	Council will ensure the following protocols are in place for staff, and to advise the community: <ul style="list-style-type: none"> <li>• What to do if a dead, injured or orphaned flying-fox is encountered.</li> <li>• What to do if someone is bitten or scratched.</li> </ul>

Management option	Relevant impacts	Cost	Advantages	Disadvantages	Site-specific detail and actions
					<ul style="list-style-type: none"> <li>Requirements for working in and around a camp.</li> <li>Heat Stress Event strategy to reduce future mortality (determined in consultation with wildlife carer organisations and other relevant stakeholders). Council will also fund the collection and disposal of flying-foxes which may die during such a mass-mortality event.</li> </ul> <p>Council will also develop an internal procedure to address emergency, or arising issues (including compliance with the Local Government Act 1993, Appendix 3) for Rudder Park as appropriate.</p>
Research	All	\$	Supporting research to improve understanding may contribute to more effectively mitigating all impacts, promotes FF conservation.	Generally cannot be undertaken quickly, management trials may require further cost input.	Council will support researchers wishing to study flying-foxes in the Shire, particularly projects which will assist in understanding local flying-fox movements and ways to mitigate impacts on the community.
Appropriate land-use planning	All	\$	Likely to reduce future conflict, promotes FF conservation. Identification of degraded sites that may be suitable for long-term rehabilitation for FFs could facilitate offset strategies should clearing be required under Level 2 actions.	Will not generally mitigate current impacts, land-use restrictions may impact the landholder.	Council-assessable applications for development near a flying-fox camp will be assessed for the need for measures to avoid future impacts (e.g. buffers, aspect, covered areas, double-glazing, etc.).
Property acquisition	All for specific property owners Nil for broader community	\$\$\$	Will reduce future conflict with the owners of acquired property.	Owners may not want to move, only improves amenity for those who fit criteria for acquisition, very expensive.	Property acquisition near the Rudder Park camp is not considered feasible.
Do nothing	Nil	Nil	No resource expenditure.	Will not mitigate impacts and unlikely to be considered acceptable by the community.	Council is committed to assisting affected community members and this options has not been considered.

Management option	Relevant impacts	Cost	Advantages	Disadvantages	Site-specific detail and actions
<b>Level 2 actions</b>					
Buffers through vegetation removal	Noise Smell Health/wellbeing Property devaluation Lost rental return	\$\$- \$\$\$	Will reduce impacts, promotes FF conservation, can be undertaken quickly, limited maintenance costs.  Bamboo would need to be treated. Beautification would also be desirable.	Will impact the site, will not generally eliminate impacts, vegetation removal may not be favoured by the community.	Bamboo will be removed along the Council property boundary to provide a buffer between adjacent residents and the camp (further detail in Section 9).  At request, Council will include properties affected by the Rudder Park flying-fox camp on relevant Council licence applications, to support landholders who wish to manage vegetation on their property.  Note that an OEH-approved Vegetation Management Plan is required prior to vegetation removal that forms part of a Level 2 or 3 action. This should also consider Aboriginal Cultural Heritage values in accordance with the NPW Act.
Buffers without vegetation removal	Noise Smell Health/wellbeing Damage to vegetation Property devaluation Lost rental return	\$\$	Successful creation of a buffer will reduce impacts, promotes FF conservation, can be undertaken quickly, options without vegetation removal may be preferred by the community.	May impact the site, buffers will not generally eliminate impacts, maintenance costs may be significant, often logistically difficult, limited trials so likely effectiveness unknown.	Deterrents may be used in combination with bamboo removal, as detailed in Section 9.
Noise attenuation fencing	Noise Smell Health/wellbeing Property devaluation Lost rental return	\$\$- \$\$\$	Will eliminate/significantly reduce noise impacts, will reduce other impacts, limited maintenance costs.	Costly, likely to impact visual amenity of the site, will not eliminate all impacts, may impact other wildlife at the site.	This options is not feasible due to the steep slope of the site.

Management option	Relevant impacts	Cost	Advantages	Disadvantages	Site-specific detail and actions
<b>Level 3 actions</b>					
Nudging	All	\$\$– \$\$\$	If nudging is successful this may mitigate all impacts.	Costly, FFs will continue attempting to recolonise the area unless combined with habitat modification/ deterrents.	Nudging (or vegetation management/permanent deterrents) may be required as a reactive measure to ensure the camp footprint does not expand further into private residences.
Passive dispersal through vegetation management	All at that site but not generally appropriate for amenity impacts only (see Section 8)	\$\$\$	If successful can mitigate all impacts at that site, compared with active dispersal: less stress on FFs, less ongoing cost, less restrictive in timing with ability for evening vegetation removal.	Costly, will impact site, risk of removing habitat before outcome known, potential to splinter the camp creating problems at other locations (although less than active dispersal), potential welfare impacts, disturbance to community, negative public perception, unknown conservation impacts, unpredictability makes budgeting and risk assessment difficult, may increase disease risk (see Section 7.1), potential to increase risk to aircraft safety due to changed movement patterns/ altered behaviour.  Cost prohibitive – include cost quoted for buffer alone.	Broad-scale vegetation removal at Rudder Park is not appropriate as it will most likely push FFs into adjacent residences, exacerbating the issue. Due to the nature of the site and access difficulties, removal of the bamboo is also cost prohibitive (based on previous quotes to implement buffers, removal of all bamboo would be in excess of \$250,000).
Active dispersal	All at that site but not generally appropriate for amenity impacts only (see Section 8)	\$\$\$	If successful can mitigate all impacts at that site, often stated as the preferred method for impacted community members.	May be very costly, often unsuccessful, ongoing dispersal generally required unless combined with habitat modification, potential to splinter the camp creating problems in other locations, potential for significant animal welfare impacts, disturbance to community, negative public perception, unknown conservation impacts, unpredictability makes budgeting and risk assessment difficult, may increase disease risk (see Section 7.1), potential to increase risk to aircraft safety due to changed movement patterns/ altered behaviour.	As detailed in Section 2.4, OEH will not support dispersal at this site, due to associated issues (outlined in Section 8.3.2) prior to implementation of lower level actions.

Management option	Relevant impacts	Cost	Advantages	Disadvantages	Site-specific detail and actions
				<p>Would require vegetation management/ongoing dispersal, both cost prohibitive (examples Appendix 6). Access for dispersal would also be very difficult and dangerous, especially in the dark.</p>	