December 2021 SARCC Newsletter

For comfortable reading click 

All SARRC groups use QR scanning for Covid-19 tracing:

COVID-19

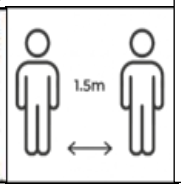
- You must QR scan and register your attendance at each ride/event. ***Note, never touch an uncleaned card or pen!***
- **RIDE LEADERS**: Please go to SARCC website, select ride group, select Covid Safe plan and print QR for scanning.

If you forget to print QR code, use smart phone get the QR image from SARCC web - riders scan from your smart phone image.

- If you are unable to QR scan, notify the Ride Leader – the Leader will email sarccexec@gmail.com with the exceptions.
- Only QR Exceptions are: *1. electricity or internet connection prevents its proper use 2. the person does not have a smartphone.*

DON'T WAIT – VACCINATE (**Our SA Vaccinated Status** link)

Mask wearing Link: *Masks are mandatory in SA's high-risk settings, check directions on web please, – if unsure or unable to social distance wear your mask.*



SA have entered a new era of Covid-19 management we are transiting from Isolation control to 80% to 90% vaccination control of the Pandemic.

Please be **Vigilant** & update regularly

COVID-19 Response | SA.GOV.AU:

SARCC RECOMMEND YOU CHECK THE WEB PRIOR TO ATTENDING ANY RIDE OR EVENT ⇓

The Following is correct at time of Print there are many reasons why changes may be necessary.

Sunday Rides:

SARCC NEED YOU to lead a Sunday Ride in 2022 Please email Peter Roodhouse or call 0418 844 963

December 5th

Meet in the carpark of the Adelaide Sailing Club, at the end of Barcoo Rd, West Beach, at 10.00am. A hilly ride up the Patrick Jonker Veloway to the East Reynella wetlands. BYO lunch or buy at the Hallett Cove Shopping Centre. ~40km. *John D 0401 686 675*

December 19th **Committee's Xmas Ride** Meet at 10am on the foreshore at Kingston Park. Parking available on Burnham Road or at the entrance to the Kingston Park Caravan Park. Rosalind Miles is leading a short ride before returning to the park at 12noon for a **BYO picnic lunch or BBQ**. The facilities at Kingston Park are listed here. There are limited seats and tables available but lots of good shade. It would be a good idea to bring your own chairs. The club will have an Esky there with ice for your **BYO drinks**. **SARCC will provide tea and coffee and ice creams**. Dress up your bikes or yourselves if you wish. The numbers allowed and eating arrangements are subject to Covid regulations so check on those. This event is subject to the normal club Hot Weather Policy. *Ros M 0448 741 556*

Thursday Rides:

Dec 2nd	David	0413 390 371	10am at Kevin's place. Park on downhill street side	Short ride some unsealed roads
Dec 2nd	Kevin	8388 1852	After David's ride Above Xmas Lunch RSVP	Christmas Lunch Kevin's place
Dec 9th	Damien	0422 004 544	10am Woodside Pool car park	All sealed roads
Dec 16th	Trevor	0401 717 031	10 a.m. Woodside Pool car park	Some unsealed roads
Dec 23rd	Richard	0433 537 762	10 a.m. Woodside Pool car park	Some unsealed roads
Dec 30th	Kevin	8388 1852	10 a.m. Woodside Pool car park	Some unsealed roads

PERFECT Ride Sunday December 12th at 9am.

Eden Valley to Moculta and return. Approximately 65km and 650m ascent.

Special Events Tab link

Monday 29th November Event: Seaford to Torrens Weir **Meeting Place:** Adelaide 9:20 am or Seaford Station 10:15 am. **Leader:** Sven Holm

Sorry you missed a fantastic coastal path ride with brilliant turquoise ocean views and enough hills to feel you earned the coastal vistas.

Saturday 4th December Event: Fleurieu Peninsula Gravel Ride **Meeting Place:** Harvest On Fleurieu, corner of Lanacoona Road and Victor Harbor Rd, Mt Compass at 10am. **Leader:** Robyn and Paul Davill 0401 364 019

AGM REPORT 24th November 2021 at Minor Works Building Sturt Street

16 members made up a quorum and we elected Kevin Dronfield to Chair the Meeting. Significant items were:

- election of officers with Robyn Davill President, Eric Chaney Treasurer, Marienne Hibbert Secretary, Kevin Dronfield Rides Coordinator, Sue Sutton, Rosalind Miles, Sven Holm Executive Committee Members.
- We had a spontaneous, unanimous vote to move our meetings to Clarence Park Community Centre unsurprising given the Minor Works location's absence of parking inhibited numbers again this AGM as it has throughout 2021.
- The treasury report was discussed in absence of a projected image (report previously emailed) the Chairman read out our bank balances of net $12687 and fixed assets $4350. Sven recommended a budget be prepared pointing out that SARCC expenses will be exceeding our subscription income. The Previous committee decided not to raise subscriptions while we have substantial reserves and while SARCC try to renegotiate our insurance premium which leapt from $1000 to $1800 last year, albeit we have a zero claims experience and a low risk. SARCC Expenses approx: Insurance $1830; Trailer Reg $90, Ins $70, Maint' $90; meeting Hire $150; sundry $100 = $2330 v subs $2200
- Concern was raised of managing Covid-19 in the new "Living with Covid" versus prior "Isolation from Covid". Ensure all Members are vaccinated and comply with Directives of hygiene, masks, and Social Distancing. SARCC needs to improve compliance that has become relaxed during the isolation period. Do SARCC have unvaccinated members and what do we do if we know? referred to new committee.

Forest and River Tour ⇐Link Please link and view the Photographs and Report - thanks to Robyn, Allison, Ros - fantastic organization.

NEW ZEALAND TOUR 2022

Reconnecting New Zealand ⇐Link **the next steps 24 Nov 2021** (MIQ = managed isolation and quarantine i.e., mandatory Hotel quarantine)
From 11:59pm 16 January 2022, opening to fully vaccinated New Zealand passport holders
The NZ government has announced that international (Australian) inbound travellers will not be allowed to enter NZ until April 2022.
Requirements for those not going into MIQ
We have a clear, simple and safe plan, including a mandatory period of self-isolation.

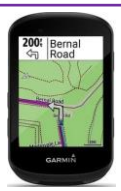
- a negative pre-departure test
- proof of being fully vaccinated
- a passenger declaration about travel history
- a day 0/1 test on arrival
- a requirement to self-isolate for 7 days, and
- a final negative test before entering the community.

This means the NZ tour cannot go ahead as planned with these directives.

A meeting will be held in the **Minor Works Building Loft (Stamford Court, Adelaide) at 7pm December 15** for participants to discuss this and decide if the tour should be cancelled altogether or deferred until February 2023.

CHRISTMAS PRESENTS for your family cyclists 😊

A bicycle repair tool kit Basics cost $70 and if they have been good all year maybe Park tools $630



Garmin Edge 530 Computer $400

Remember size does matter
Gloves $19
Socks $25

Bicycle Tools Repair Kit in a Tin by Gentlemen's Hardware $30 or Tubeless tyre repair kit $42

He has been good all year deserves more than socks and jocks:

GoPro Hero 8 $450
Handlebar mount $19

She has been good all year deserves more than perfume and flowers:

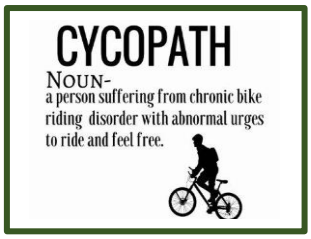
Buy her the DJI mini 2 drone it may even stop you droning-on, $737 or spend more for object avoidance & folllow me or less on a basic Drone Max V2 $148

"You Tube" Entertainment Segment

1. Stella Vita Solar Camper - First Look | CARS&NEWS -
2. The Amazing Way Bicycles Change You| Anthony Desnick
3. Tesla Phone Model Pi Will DESTROY the INDUSTRY
4. What are the e-bike laws in NZ? | NZ Electric Bike Review
5. Top 10 Most Incredible Christmas Celebrations Around the World
6. Christmas Tree Tradition History and History of Christmas Trees
7. ABBA - Little Things (Lyric Video) Christmas from ABA voyage album
8. Vintage Christmas Bicycle Wreath - Bing video

So, you sunburnt your nose!
But you had used sunblock creams and even zinc, twice or more on your ride and still it was red and uncomfortable.

A surprising culprit maybe you have put a covid mask on and off, and adjusted it many times. That has a tendency to wipe off your protective sunblock or zinc. Suggest reapplying your sun protection after removing your mask



May the smooth path weave less steeply,
May the wind be always at your back,
May gentle sunshine warm your smiling face,
May your tyre rubber always face downward
and until we meet again
May your God keep you safe in his/her hands!

RAA samotor magazine & cycling safety link

I recommend you read the RAA samotor magazine cycling articles. RAA is honouring the fact that cyclists exist and share our roads and paths. A very large portion of RAA's 770,000 membership also ride bicycles and it is great to have the RAA openly and publicly partially fill the void of positive influence and lobby in S.A. for safe cycling. Other cycling groups are seemingly media shy or unable to get publicity and extend only limited constructive recommendations for improvements to cycling infrastructure so RAAs voice is appreciated.
The Latest article acknowledges the great work Amy Gillett Foundation is doing. Cycling Safety: ride to survive | samotor The RAA Magazine. A mention of Bicycle SA's education program delivery is in past RAA articles.
In 2005, cyclist Amy Gillett was riding with the Australian women's cycling team in Germany when she was hit and killed by a driver who'd lost control of her car. From this tragedy, the Amy Gillett Foundation was formed. Working with all levels of government, as well as corporate, community and motoring organisations, the foundation's sole mission is improving cycling safety.

Its tireless advocacy saw success as recently as April 2021 when Victoria became the last state to adopt the one metre gap rule for when motorists pass a cyclist (1.5m in zones over 60km/h). This means the law now applies in every state and territory.

Mary Safe, Amy's mother and joint founder of the foundation, says the increasing popularity of recreational cycling has put the spotlight on cycling safety issues and the need to share the road. "Cyclists and pedestrians are a lot more vulnerable by the very nature of their transport." and "We're all human beings, and everybody in a car, on a bike, or a pedestrian is somebody's loved one. Someone wants them to come home alive; we have got to be mindful of that and act accordingly."

⇑ current AGF Project ⇑

Eight drive and ride rules make up the It's a two-way street link campaign message of 'show mutual respect' which is equally applicable to both drivers and bike riders.
P.S. Ring your bell or call "passing right" on shared paths, some pedestrians don't have music or phone calls in their ears.

Amy Gillett FOUNDATION
Safe together

SARCC appreciate Amy Gillett FOUNDATION Contribution to Safe Cycling

A word from RAA:
Bike lanes and separated shared pathways all contribute to cycling safety, and it's important we continue to improve and develop infrastructure. Earlier this year, RAA conducted a Risky Rides survey of cyclists and found that Anzac Highway was considered to be Adelaide's riskiest road for bike riders, followed by Marion Rd. Other roads high on the list were the metropolitan section of Greenhill Rd, as well as Payneham, Port, Portrush, Cross, Frome, Unley and Fullarton roads.

"One of the issues that most concerned cyclists are bicycle lanes suddenly ending or places where the surface is so poor it's almost dangerous to ride on," RAA Senior Manager of Safety and Infrastructure Charles Mountain says.

"The survey drew attention to the need for maintenance on many of the popular cycling corridors, and in the ensuing months a lot of those roads, like Greenhill, Fullarton and Kensington roads, have been fully resealed. So that's a real positive, and we'd like that to happen on other corridors. "We've also welcomed the news that funding's been approved for the Goodwood overpass on the Mike Turtur Bikeway."

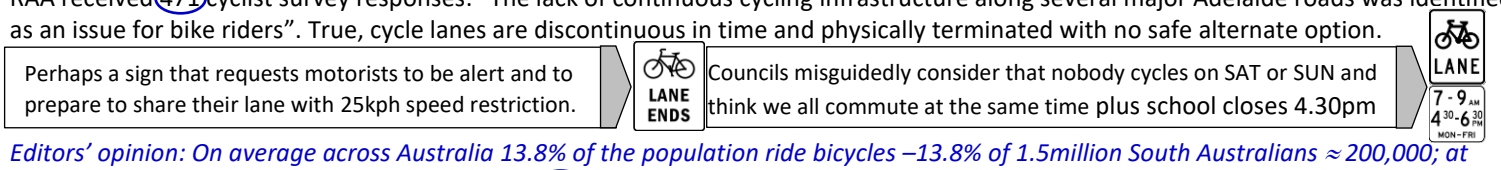
Editors' opinion: All the roads mentioned above can be improved for cyclists without spending money they all have a common solution – ***Make the above road's CYCLE LANES PERMANENT –i.e., NO STOPPING – NO TIMED LANES they are DISASTERS WAITING TO HAPPEN!***

Australian Road Rules legislation link an interesting read ☺ part 2 division 1 rule **12 What is a road?**
(1) A **road** is an area that is open to or used by the public and is developed for, or has as one of its main uses, the driving or riding of motor vehicles. (3) The **shoulder** of the road includes any part of the road that is not designed to be used by motor vehicles in travelling along the road, Rule **15 What is a vehicle** A vehicle includes: (a) a motor vehicle, trailer and tram; and (b) a bicycle; and (c) an animal-drawn vehicle, and an animal that is being ridden or drawing a vehicle; and (d) a combination; and (e) a motorised wheelchair that can travel at over 10 kilometres per hour (on level ground);
Editors' opinion: Clearly the Australian Road Rules (May2021) intent for roads is to provide efficient and effective transit lanes for all forms of transport. Therefore, the perceived entitlement for on-road parallel car parking should not be granted priority particularly when that parking forms a clear and present danger to vulnerable users and inhibits traffic flows. Establishing more permanent cycle lanes with no stopping will give significant safety improvement to cyclists and create substantially enhanced motor vehicle traffic flows.

E.g., if you travel along Unley Rd when the cycle lane is timed out and a light truck is parked legitimately in the cycle lane; a car in the middle lane stops to turn right - the inside lane is blocked by the parked vehicle so traffic backs up for a few kilometres; let alone the vulnerable cyclist trying to legitimately weave his/her dangerous route in and around parked cars and least we forget the parent with the pram hidden by the parked vehicle trying to cross the road, or the pedestrian crossing the entrance to the side street not easily seen by the left turning vehicle because of parked vehicles. The traffic engineer's textbook solution is "a curb extension to enhance pedestrian safety by increasing pedestrian visibility, shortening crossing distances, slowing turning vehicles, physically and visually narrowing the roadway." That solution pushes cyclists into the motor vehicle lanes, decreases the smooth traffic flow, and visibility of and by pedestrians is enabled far better by merely removing parallel parked vehicles i.e., install permanent bicycle lanes.

"Wheeled recreational device or wheeled toy" - has its own mention but clearly the law is slow to recognise all the very real transport options of, Segway eMonoweel, eSkateboard, etc as other than a toy. Does any member feel like writing an article about these new "eToys" & their legislation now they are capable of sustained speeds of >25kph (eScooters S 244A)

RAA received 471 cyclist survey responses: "The lack of continuous cycling infrastructure along several major Adelaide roads was identified as an issue for bike riders". True, cycle lanes are discontinuous in time and physically terminated with no safe alternate option.



Editors' opinion: On average across Australia 13.8% of the population ride bicycles –13.8% of 1.5million South Australians ≈ 200,000; at minimum 50,000 cyclists regularly riding, so only 471 replies was a pathetic cyclist's response. Maybe because we cyclists perceive Automobile Association as a dedicated body representing Automobile owners. Cyclists may wrongly have prejudged that RAA would be highly unlikely to lobby on their behalf. To a small degree that assumption is true, the poor road surfaces focus benefits motorists to lobby for resurfacing. "We've also welcomed the news that funding's been approved for the Goodwood overpass on the Mike Turtur Bikeway" plus "One of the main issues raised by our (Encounter Bay Bikeway) road assessment team was the lack of continuity in off-road tracks, which presents safety concerns for pedestrians, pets and cyclists alike," in both cases the lobby is for off-road cycleways which clearly is an advantage to both motorists and cyclists. Essentially, the need for more dedicated full time on-road cycle lanes clearly benefits better traffic flows but will be a tough call for RAA that motorist members may need to be restrained from privileged parallel parking on some roads.

It is very good news that we cyclists are being supported by the RAA; next survey cyclists please respond. RAA words of wisdom "Bike lanes and separated shared pathways all contribute to cycling safety, and it's important we continue to improve and develop infrastructure" this aligns with cyclist's requirements. I would encourage RAA to support and lobby for a few projects like the six selected below:

1. **Amy Gillett trail extension** to Birdwood
   - *Motorist advantage: less cyclists on Onkaparinga valley road*
2. **Port Road Railway Bridge underpass** shared path from SACA grounds park 25 to Hospital grounds and Bonython Park 29
   - *Motorist advantage: light controlled pedestrian crossing to Goal Rd stops 30+ vehicles every 10 minutes, underpass is a safer more efficient alternative.*
3. An **overpass** along the railway trail from Railway Tce over Daws Rd and over Marion Rd to Minchinbury Tce
   - *Motorist advantage: removes two light controlled pedestrian crossings on Daws and Marion Rd therefore reduces congestion and improves safety for all.*
4. **Connecting a safe Gawler Trail from Stuart O'Grady bikeway to Carlton Road to start of Jack Bobridge Trail**
   - *Motorist advantage: reduction of cyclists crossing at complex intersections throughout Gawler. Link creates continuous trail from Adelaide City to Angaston.*
5. **Zebra crossings on all slip lanes** that are adjacent or part of cycle trails
   - *This one is pure cyclist and pedestrian safety*
6. **The BIG Trail:** A shared path trail from Adelaide to Goolwa to Mount Gambier to Dartmoor at VIC border
   - *SAs contribution to the shared path from Melbourne to Adelaide, it will follow existing structures and **peak tourist attractions**.*

I am an enthusiastic gold card RAA member, RAA support me the Motorist, Cyclist, Pedestrian maybe even Segway-Ninebot devices!

It is a big leap forward that RAA have made to recognize Cyclists and Pedestrians –

In Addition: RAA Road Service Benefit 1.9 Bicycles **(read RAA Road Service Entitlements)** link

If your Bicycle can't be ridden because of a mechanical failure or puncture, an RAA Service Provider will attend and attempt to fix the Bicycle. If the RAA Service Provider can't fix the Bicycle at the roadside, during the Call-out we can arrange for a taxi to take you and your Bicycle to a place of safety or repair at the time of providing Road Service. We'll contribute a maximum of $55 per Subscription Year to the cost of a taxi following a Call-out for a Bicycle. The taxi contribution for Bicycle Breakdown can only be used once per Call-out and is separate from the Premium taxi Benefit after Vehicle Breakdown/towing (see section 2). In Country Serviced Areas, transport of you and your Bicycle can be provided by the designated RAA Country Service Depot, up to the following distances back to that depot, per incident: • Premium: 200km (400km Round Trip) • Plus: 100km (200km Round Trip) • Standard: 40km (80km Round Trip).
Transport of you and Bicycle in any direction from the Breakdown location or from the attending RAA Country Service Depot, per incident: • Premium: up to 50km or a value of $360, whichever the lesser • Plus: up to 20km or a value of $144, whichever is the lesser • Standard: up to 10km or to a value of $72, whichever is the lesser.
If a child under the age of 18 is riding with you and their Bicycle suffers a mechanical failure or puncture, you may also use the Benefits for the child. It's your responsibility to make sure any necessary child safety restraints or seating is available for the child

I have read the following RAA Cycling articles they are all well written, balanced and deserve your attention

Cycling Safety: ride to survive
6 tips for safer cycling
5 family-friendly cycling trails
Cycling survey prompts calls for calm

RAA
SARCC appreciate your Contribution to Safe Cycling

6 confusing cycling situations explained
How to choose the right bike for you
Can I drive in bus and bicycle lanes?
Encounter Bikeway review highlights safety concerns

Bicycle Tyres and Punctures – Part 1 *(part 2 January newsletter)*

Eric (on Tue 6th APR Tuesday Traverse) decided to be a bit too clever (so out of character!) and demonstrate the effectiveness of his wide-tyred MTB Ebike off the track on a ride to Semaphore. The surprise result was outstanding, with a record 36 three cornered jacks distributed deeply embedded in both front and back tyres (and with Eric having been an accountant, who would dare challenge that number!). Needless to say, the fat tyres didn't stay round at the contact point for long i.e., FLAT. A short walk to Avanti Semaphore and two new tubes fitted solved the problem. That started a conversation about Tubeless Tyres or Tubes with sealant and Solid tyres.
So, Eric "volunteered" Don McDonald to write an article on approaches to reduce the perennial problem of punctures.

Part 1 addresses more or less conventional approaches to the problem, **Part 2** will address current and proposed "airless" solutions.

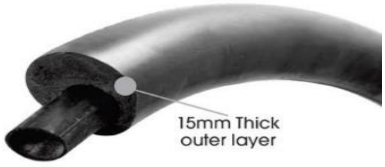
Pneumatic tyres displaced the older solid rubber tyres basically because of their advantages of shock absorption (John Dunlop was inspired because his son got headaches from riding boneshakers) and lower rolling resistance. They also spread shock around the rim. They introduced the new problem of punctures, both penetrating (eg calthrop, aka three corner jacks) and pinch flats (i.e. where the tube is compressed between the rim and a sharp rock). Approaches to tackle the problem have included tougher tyres, tougher tubes, inserts, tubeless tyres and airless tyres or tubes (two broad approaches: a return to the old solid systems but with new materials; and radical new technologies). In addition, there is the use of sealants inside (non-solid) tyres or tubes (essential for tubeless tyres).

The puncture resistance of tyres depends on rubber thickness and composition. A number of manufacturers include resistant inserts in the tyre itself, eg the Schwalbe Marathon Plus has an insert that provides extra protection on the tread side, but not on the sidewalls. See What Is The Most Puncture Resistant Touring Tyre? Lab Testing Results – CyclingAbout for a comparison of tread puncture resistance, sidewall puncture resistance, tyre factor puncture resistance (also taking tyre thickness into account) and rolling resistance for 19 different tyres.

Thorn-resistant tubes offer protection solely through extra thickness (four times thicker on the tread side) at the expense of extra weight (which means extra rolling resistance, all things being equal).

Another alternative is to use a tyre liner that fits between the tyre on the tread side and tube. Low end ones are made from polyurethane plastic, and heavier, more expensive ones from kevlar. In either case, care must be taken to avoid bulges (from overlapping or straying off centre) as abrasion is likely to lead to slit type punctures (as I have experienced).

The next step up is a thicker insert that fits between the tyre (tread side) and tube. The Tannus Armour insert uses a type of multi-cell foam polymer compound they call Aither. The insert slips down into the rim well; it is 15 mm thick on the tread side and 2 mm on the side walls, giving all-round protection. Described as a "fight to fit" in one review (contrasting with the Tannus website estimate of "a minute to fit"), it adds 300gm (to a 29" wheel), although this could be offset by using a thinner (and therefore lighter) tyre. The insert allows lower pressure, but it is a case of trial and error to get the sweet spot. The review noted that the system felt normal in terms of sensitivity when it came to traction and roll over on small stutter bumps. Note that the insert compresses with time. It is available for a wide range of tyre sizes. Indicative cost: $59 (Bicyclesonline).



Freedom to Ride (Tioga) Max Protect system is similar; the insert is a cellular elastomer composite over the tube, 15 mm thick on the tread side. It is claimed to be easy to install and to ride "just like a traditional tube" (although advice from 99 Bikes is that installation is fiddly, and they recommend bike shop installation) It is available in a wide range of tyre sizes, with both Shrader and Presta valves. Indicative cost: $30 (BicycleStore)

Sealants for tubes

Sealant will add a bit of weight to a tube. Most tubes are butyl, but (more expensive but lighter) latex tubes are available. Note that some sealants attack latex tubes, but not butyl ones. Two examples are Slime and Muc-off. Slime is guaranteed for 2 years, at which time the tube should be discarded, as the Slime corrodes. Slime doesn't expand when it enters the tire, but remains liquid, coating the tread area as the tire rotates. It does not work so well on punctures on the side-wall (such as pinch flats). Slime repairs flats with a mechanical seal, meaning physical particles actually plug up the hole. The physical particles are a combination of long and short fibres, as well as rubber particles; this mixture is referred to as Fibro-Seal technology. The pressure of the escaping air forces the Fibro-Seal® particles into the opening, where they build up and intertwine to form a long-lasting, flexible plug. Slime can be messy to apply (especially for Presta valves), but pre-treated Slime tubes are available.

Muc-off No Puncture Tube Sealant is a water-based sealant that is claimed not to dry out and to last the life of the tube. It is messy to apply (especially with Presta valves that lack removable cores), but supposedly can still be applied with care; see Review: Muc-Off Inner Tube Sealant | road.cc).

Tubeless tyres

Tubeless tyres require compatible UST rims, with a lip. Note that a tube can still be used with a "tubeless-ready" rim. Tubeless tires may be difficult to install and remove due to the stiff bead designed to grip the lip on the rim https://www.sportsrec.com/4242615/tube-vs-tubeless-mountain-bike-tires (especially on the side of the road - just ask Eric!) Some tubeless rims have no spoke holes, so air can't escape there, but most do. These holes must be covered over with one or two wraps of tubeless rim tape, then tubeless sealant inserted in the tyre to cope with small leaks. See
https://www.cyclinguk.org/cycle-magazine/what-are-pros-and-cons-tubeless-tyres
https://www.parktool.com/blog/repair-help/tubeless-tire-mounting-and-repair
Web guidance suggests using tubeless tires for mountain biking, gravel riding, and cyclocross racing. For road use, advantages are less obvious. See Tubeless Bike Tires Advantages and Disadvantages – ApexBikes.

Sealants for tubeless tyres

See https://www.bikeradar.com/features/which-tubeless-sealant-works-the-best/

Two types of sealant are available: latex-based and latex-free, which must not be mixed.

Most sealant is made from a natural latex base that dries (coagulates) inside a puncture when it is exposed to air and the water/ammonia mix evaporates. There are particulates suspended in the latex—different brands use different materials—which is what gives the latex something to stick to in order to clog the hole instead of seeping out – but this accelerates the rate at which the latex coagulates inside the tyre, reducing its lifespan. There is "no such thing as too much", but it may take a little time for the sealant to plug a larger hole. If a puncture is too big, you can use a tubeless tyre plug. If there is a gash in the tyre, you can remove the tubeless valve and install a regular inner tube to get home.

If a hole won't seal, it is possible that you are running at too high a pressure. One of advantages of tubeless is that you can run at lower pressure to get more comfort and better traction. See https://www.bicycling.com/repair/a34480618/how-to-use-tubeless-tire-sealant/

As the sealant evaporates over time, there is a need to top up regularly (eg 2-3 months), depending somewhat on riding conditions. It is recommended that, at least once a year, you take the tyre off the rim, scrape out old dry sealant and start again. Top up is either through (removable) valve stem or (messier!) separate a section of tyre from the rim and pour it in.

Latex-free sealants rely on a more viscous (thicker) liquid, containing a wider variety of sealing particles, designed to physically plug punctures. They last longer, but supposedly do not seal punctures as well. See https://www.bikeradar.com/features/which-tubeless-sealant-works-the-best/

Tubeless pros✓

- ✓Lower tyre pressure, giving better traction and more comfort
- ✓Fewer punctures: sealant will seal small holes. Most punctures that don't seal are easy to fix with a tyre plug.
- ✓No tube means no pinch flats and less weight, and no friction between tyre and tube.
- ✓Claimed lower rolling resistance

Eric's experience: My move to tubeless on an MTB with Tubeless Ready rims was $140 at 99Bikes. Required 2 new tubeless tyres, sealing rim tape, Stan's sealant, and labour. The results have been a reduction in flats & better performance. Yes, refitting the tyres is a pain, but significantly less often required. Carrying a tyre plug is lighter than a patch kit; carrying a tube for emergency when remote is necessary.
Tubeless Ready (with holes) or Tubeless (without holes) ~link to rim types

Tubeless cons✖

- ✖Fitting is messier and more time consuming
- ✖More expensive, especially if converting a bike without tubeless-ready rims. Tubeless tyres are more expensive, and more paraphernalia needed. An indicative cost for converting from a non-tubeless ready system to tubeless is just over $500 (99 Bikes).
- ✖Removing tyre from rim can be difficult. If a tear or hole is too big for a tyre plug, you'll still need a spare tube to get home.
- ✖Air and sealant can escape ('burping') if the tyre bead comes away from the rim due to a sudden impact or extreme cornering force
- ✖Sealants need regular topping up.
- ✖Valve cores can also clog up.
- ✖Not suitable for high pressure (road bike) tyres; see for example https://www.cyclingweekly.com/products/the-unfortunate-incident-of-the-failing-tubeless-tyre-sealant

Tubeless tyre Inserts

An insert for tubeless tyres on the tread side would not be held in place in the absence of the tube. However there are a number of inserts for tubeless mountain bikes that fit on the rim side, but their purpose is to protect the rim from damage from stones, rather than to reduce penetrating punctures. (Examples include Schwalbe Procore, Cushcore, and Tannus Armour Tubeless).

BUTYL, LATEX AND TPU TUBES:

Until recently, we have had a choice of just two types of tubes: butyl and latex. Latex tubes are usually lighter in weight than butyl, and are claimed to be more puncture resistant because of their greater flexibility (so a thorn will deform the tube without necessarily puncturing it). Maybe! On the downside, they tend to be more expensive, are not as readily available and are porous, so that tyres will need to be pumped up before every ride. It's also claimed that latex tubes can't be pumped up with a CO_2 cartridge because of CO_2's high permeability (i.e. it diffuses through latex too quickly). Being thinner than butyl tubes they are more delicate and greater care is required in installation, and they are also more easily damaged by oils and solvents (so care must be taken with the choice of a sealing liquid, if used). It seems that for recreational use, they're just not worth the hassle.

More recently thermoplastic polyurethane (TPU) tubes have become available (again). Although earlier releases (Eclipse in 2010 and Schwalbe in 2015) did not succeed in the market place, there are currently (at least) four manufacturers: Tubolito (Tubo), reborn Schwalbe (Aerothan), Revoloop and Pirelli (SmarTUBE). They all claim extreme light weight and greater puncture resistance. Tubolito, Schwalbe and Revoloop are repairable with their own proprietary repair kits; Pirelli state any TPU patch (eg Tubolito) will work on their tubes. Only Tubolito say that a sealing liquid and repair spray (i.e. sealant and inflation for short-term fix) will be effective. Tubolito also offer a free replacement on their X-Tubo tube if it punctures within one year. They all state that a CO_2 cartridge may be used. All brands provide for a range of tyre sizes, but currently are restricted to Presta valves. A note of caution: only Schwalbe and Pirelli approve use with rim brakes; TPU tubes may be susceptible to heat.

Reviews have been mixed (with regard to puncture resistance), and for tubes costing north of $50, I suggest letting someone else try them out first!

And the latest: It was reported (May 2021) that Tubolito is launching some new TPU mountain bike tubes (Tubo-MTB PSENS) that have a pressure-sensing NFC chip inside, allowing riders to check their tyre pressure with a smartphone app … that cost even more (around US$50). The chip is mounted near the valve, and you need only put your phone within a few centimetres. NFC (Near Field Communication) is the technology used when you pay by phone in place of a credit card.

Further reading: https://tpuinner.tube/thermoplastic-polyurethane-tpu-inner-tube-comparison/
https://www.mrcyclingworld.com.au/buy/schwalbe-aerothan-tubes/
https://tpuinner.tube/thermoplastic-polyurethane-tpu-inner-tube-history/
https://www.tubolito.com/tech/ and https://velo.pirelli.com/en/ww/product/p-zero-smartub