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PPK Investee Company, AMAG Pty Ltd, Solves Challenge of Predictive Analytics for Road Safety

PPK Group Limited (ASX Code: PPK) is pleased to announce that Advanced Mobility Analytics Group Pty Ltd, (AMAG) has solved the challenge of predictive analytics for road safety with the release of the world's first Safe Mobility Alert Real Time (SMART) Digital Platform – delivered via Software as a Service (SaaS). SMART will help governments to reduce traffic accidents by up to 60%.

PPK holds a 20% shareholding in AMAG following a \$1.5m investment in December 2020. PPK Executive Chairman, Robin Levison, is also a Director of AMAG. The remaining shareholders of AMAG include the Co-Founders and the University of Queensland, University of British Columbia and the Queensland University of Technology with commercialisation support from UniQuest.

Advanced Mobility Analytics Group Pty Ltd (AMAG) aims to be the world leading digital platform provider for proactive road safety analytics and management, applying more than 100+ years of cumulative road safety knowledge among current staff and co-founders to develop modules within SMART. The company was founded in 2019 and currently has a team of 17, consisting of road safety engineers, road operations engineers, software developers and executive officers.

Transforming Road Safety

The current global state of practice in quantitative road safety management is reactive in nature; people are injured and killed on the transport network prior to problems being quantified and road safety improvements justified. Until now, road safety management practice has not harnessed significant improvements in technologies to fundamentally shift global practice.

Efforts to improve road safety in developed countries have largely plateaued over the past decade, emphasizing the need for new and innovative capability for solving this global health burden.

AMAG is at the forefront of transformation, by offering the world's first Safe Alert Real Time (SMART) Digital Platform delivered via SaaS.

Using video analytics, artificial intelligence (AI), deep learning, and advanced econometrics techniques, SMART fundamentally improves how safety can be managed by governments. During the past decade the co-founders have proven and refined the methodology and technology through research development, refinement, testing, and validation with more than 23 city customers across 8 countries globally. Crashes have been reduced between 20% and 60% as verified using AMAG predictive analytics. The SMART Platform helps governments to achieve Vision Zero and Safe Systems policy objectives, supports Smart City deployments, and is prepared to capture changes to crash risk in the driverless and connected future.

Large Scale Public Benefit and Commercial Opportunity

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The public benefit from and commercial opportunity for SMART is vast. On a global scale, the cost of transport system-related crashes is greater than US\$870 Billion per annum, with 1.25 million deaths per year. In both developed and developing countries, the loss of life and number of critical injuries is staggering and unacceptable. Knowing the conditions under which accidents happen, when, and where they are most likely to occur is powerful information that can be used to inform correction actions and investment. For example, logistics companies can use this information to avoid specific routes, insurance companies can share this information with their clients, and cities can inform law enforcement about dynamic hotspots, and the transport network can be better managed. Using SMART, governments around the globe can proactively manage road safety on their transportation networks and reduce crash risk for all road users through improved operations and capital investments

The commercialisation of SMART has commenced and is generating revenue for AMAG. AMAG has secured government customers for its SMART Platform in the United States, Canada, and Australia, and is currently negotiating with various additional government customers in Canada, New Zealand, US, and Australia. AMAG has forged go-to-market partnerships with several global engineering consulting companies, and enjoys technology partnerships in the US with Microsoft and Boulder AI

AMAG is planning products for the future that will see seamless integration of LIDAR, video, and connected and automated vehicle data coupled with edge, cloud, and internet-enabled sensor technologies (IoT) into AMAG's SMART world-leading road safety platform. Underpinning AMAG's development team are internationally recognised experts in advanced econometrics, Artificial Intelligence, data mining, and vision engineering methods and techniques. AMAG's analytical expertise is matched by leading software developers and programmers. PPK is poised and well positioned to assist with the global rollout of its road safety solutions.

Growing investment by Governments across the world in Smart City technologies, in SaaS based solutions, and driverless and connected will serve to drive demand for AMAG's SMART modules and related services.

An Entirely New Approach to Road Safety

Many transport network locations involve complex road user interactions, which in turn are over-represented in crashes, and are well served by video monitoring. These locations include intersections, school zones, railroad crossings, motorway onramps, and mixed-user corridors (e.g. light rail, tramways, etc.). As most transport network locations have unique design and operational challenges, using AMAG technology can provide rapid feedback on the safety and operational performance of these sites, before crashes occur. Instead of governments waiting several years to evaluate the safety effect of a system change, for example, AMAG's technology provides reliable, accurate safety and crash risk feedback on the scale of weeks.

The AMAG SMART Platform involves processing in fine detail the empirical evidence enabled by video monitoring of a site, for all road users. Importantly, insight into the safety of the most vulnerable of road users—pedestrians and cyclists—is provided at a level of detail not available from any other currently available technologies. Video analytics, making use of the latest AI, classifies 8 different road user classes, and tracks their movements precisely and anonymously in space and time. All sensitive privacy information can be purged within the video camera, so private information is not known or accessible. Based on more than 70 years of cumulative research, the DRM delivers more than 20 separate dashboards with detailed, processed video information to enable improved decision making by governments. Underpinning all dashboards are validated crash metrics, advanced econometric models, and AI to piece together a complete picture of road user crash risk, both now and in the future.

Moving forward, AMAG will continue to implement new, powerful features into SMART to solve local, regional, and state governments' most pressing safety challenges. SMART will be able to identify and classify an increasing number of road user classes, such as distracted pedestrians, scooter users, and e-bikes. It will recognise and measure an increasing set of road user evasive actions, such as extreme braking and swerving, in addition to its current exhaustive set of conflict metrics. It will offer more extensive safety predictions, such as how many crashes will be expected if pedestrian users double at a site. Finally, it will measure risk of self-driving and connected vehicles with 'normal' (non automated) road users, to ensure that the future transport network is safer than today's.

Key Technical Features

The SMART Digital Platform enables governments to Monitor, Manage, Maintain, and Mitigate risks associated with Mobility of all road users on their transport networks. The SMART Digital Platform consists of four key predictive analytics modules to digitally transform the way safety and operational benefits are delivered to all road users:

- *Continuous Safety & Operations Monitoring Module (CSO)*, efficiently delivered using edge-enabled cameras provided by Boulder AI (a partner), the CSO monitors the transport network constantly, assessing monitored transport network locations and alerting as to when operations or risk has rapidly changed compared to baseline operations, and providing standard, regular operations reports;
- *Adaptive Traffic Signal Plugin (ATS) Module* is deployed in concert with the CSO, to improve the timing of traffic signals when crash risk is heightened, offering signal timing that is optimised for both Crash Risk and Delay simultaneously;
- *Diagnostic Risk Mitigation (DRM-V)* is used to risk manage high-concentration crash locations by performing a 'deep dive' diagnostic analysis of a monitored location, and identifying targeted site engineering improvements that will reduce crash risk. The DRM in tandem with the CSO Module covers both safety management and operations functions within governments;
- *Diagnostic Risk Mitigation (DRM-L)* is used to risk manage line-source crashes on the rest of network, locations that are not suitable for video surveillance—and couples point source Lidar data with crash data to deliver network level safety management solutions for specific road users, such as automated vehicles or bicyclists

The platform is fundamentally unique compared to other available technologies currently in the market, including

- Rapid and reliable crash risk assessment for all road users;
- End-to-end transport network risk assessment coverage;
- Real-time and diagnostic road user safety analytics;
- Operations (real-time safety monitoring), Maintenance (deterioration of road safety due to aging and use) Management (black spot identification and rectification) and Mitigation (countermeasure identification);
- Alert driven transport network safety and operations monitoring; and
- SaaS delivery for hands-on safety operations and management by end-users

PPK's Executive Chairman commented, "The development of AMAG's SMART Digital Platform is a genuine breakthrough and the world's first predictive technology in road safety. The potential for SMART to save lives is obvious and commercial interest in the Platform is

strong. AMAG is already generating revenue and, as a shareholder, PPK is very excited about the global potential for the Platform with AMAG currently negotiating with various other customer cities in Australia, Canada, New Zealand and the US. AMAG's success to date and robust commercial outlook highlights the potential for PPK's strategy of technical commercialisation in partnership with leading Universities to yield strong results for PPK shareholders."

This announcement has been made and authorised by the PPK Group Board.

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