Pedestrian Safety in Bishkek’s Smart Cities Concept

A report by the Eastern Alliance for Safe and Sustainable Transport and Public Association ‘Road Safety’
Pedestrian Safety in Bishkek’s Smart Cities Concept

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Eastern Alliance for Safe and Sustainable Transport (EASST)

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FOREWORD

Following a tragic spate of road traffic fatalities across Bishkek last year, this report is much needed. In 2017 alone 570 pedestrians lost their lives or were injured in road traffic crashes in Bishkek – all of them innocent individuals going about their daily business. Every road death is preventable. This report is a needed reminder of how making Bishkek pedestrian-friendly should be an aim of the Smart Cities Concept.

This report not only demonstrates the tragic impact of road traffic crashes on people’s lives and the economy – costing Kyrgyzstan an estimated 5.22% GDP annually. It also provides critical insight and recommendations on how these deaths can be avoided through achievable engineering solutions. It is an essential resource for both government and local authority planners, and supports the Presidential Decree of 31st July 2017 setting out a “complex of measures” for urgent activities to improve road safety.

In conducting the research for this report the Eastern Alliance for Safe and Sustainable Transport (EASST) and local partners Public Association ‘Road Safety’ have worked closely with the Bishkek Traffic Police to gather, analyse and publish data on road traffic collisions in the city for an entire year. This is the first time that such comprehensive data has been collated and is, just in itself, a major accomplishment and significant step towards improving road safety in the city.

Using police data, this report reveals that a high proportion of road deaths (72) occurred at just a small proportion of road junctions (15). Addressing the hazards at these most lethal intersections is therefore an urgent priority.

Safe and sustainable roads that are people-centred rather than vehicle-centred are not only life saving but also significantly improve mental and physical health, economic development and tourism. They are also achievable. I am proud that the UK Embassy in Kyrgyzstan is able to support this work and very much hope that in the near future the streets of Bishkek will be safer and healthier places for everyone to enjoy.

HE Robin Ord-Smith
British Ambassador to Kyrgyzstan
INTRODUCTION

48.6% of road fatalities in Bishkek are pedestrians.

Bishkek, along with the city of Osh, is embarking on an ambitious Smart City programme to improve urban life, make the city more sustainable and resilient, employ information technologies to enhance the efficiency of public services, and make the streets safer and more secure for its residents. Smart cities can be more human-friendly than urban developments of the past and can help enrich and better connect local communities.

This report has been produced to assist the city in developing their strategy. Information on pedestrian movement and safety is vital for government and local authority planners seeking to improve city design as part of a smart cities programme. Finding ways to accommodate pedestrians safely inside a city is part of all good urban design. Allowing for safe pedestrian movement can help optimise investment decision-making to improve urbanisation and underpin mobility for residents, local businesses wanting to promote client footfall, and visitors - all important for smart cities.

Road safety is a key feature of a safe and secure urban environment. It is a critical issue in Kyrgyzstan, where over 1,000 lives are lost on the roads every year - around three each day. This loss of life is both a human and economic tragedy. Based on the World Bank formula for the economic cost of road crashes, road death and injury in Kyrgyzstan costs the country an estimated 5.22% of GDP annually.¹

According to Road Police data, 48.6% of road fatalities in Bishkek are pedestrians. Most (though not all) pedestrian death and injury is caused by one thing – poor road infrastructure. Improving pedestrian safety should be a key objective of Bishkek’s Smart Cities policies.

On 31st July 2017 President of the Republic Atambayev issued a decree setting out a “Complex of measures” for urgent activities to improve road safety. There is now a very good opportunity to incorporate these aims within a wider Smart Cities strategy for the capital, Bishkek. The aim of this report is to assist this process and put people at the centre of city developments.

Over 1000 lives are lost on the roads every year.

¹ Road Safety in the EBRD Region. European Bank for Reconstruction and Development and EASST. December 2017, p.5.
THE PROBLEM: Pedestrian death and injury in Bishkek

A new report published by the World Bank again underlines the unacceptable cost of road deaths and serious injuries – a cost that should be familiar to anyone interested in transport planning. The report goes beyond this, however, to calculate the economic opportunity cost of road death and injury. The authors estimate that over a period of 24 years significant long-term economic growth of between 7%-22% can be achieved through reducing road traffic injuries in line with UN recommendations.² Tackling pedestrian death and injury in Bishkek is therefore an economic priority.

The first step in addressing any problem is to measure it. The Public Association ‘Road Safety’ has worked very closely with the Bishkek Traffic Police to obtain critical data on pedestrian death and injury in order to assist the process of improving pedestrian safety. The Bishkek Traffic Police force have for the first time published and analysed data for an entire year, 2017, providing a very rich source of detailed information that has underpinned our analysis. This data not only counts with accuracy the number of pedestrian collisions in the year, but also shows the dates, times and specific locations of these collisions as well as how many of the victims were children under the age of sixteen. The Bishkek Traffic Police have done an outstanding job in assisting PA Road Safety and EASST by providing this most valuable information.

Police data for Bishkek shows that in 2017:

- 1,236 road crashes involved hitting a pedestrian – an increase of 62% since 2016.
- Young people aged between 10 and 16 are particularly vulnerable.

The data also helps us understand the nature of pedestrian road risk in the city:

- The district with the highest incidence of road injury in Bishkek is Leninskiy, followed by Pervomayskiy.
- The ‘safest’ region is Sverdlovskiy, though the level of pedestrian deaths and injuries is still very high.
- The most dangerous time of the day for all road deaths and injuries (not only pedestrians) is between the hours of 18.00 to midnight. This is when visibility is poorest while traffic remains busy.
- 87% of all pedestrian deaths and injuries occurred during the months of October-February when weather conditions are worst and days are shortest.

In total in Bishkek, 34 pedestrians were killed and 536 were injured during 2017. Nearly one in four of these road victims – 22.3% - was a child under the age of 16.

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The Bishkek Traffic Police listed 429 sites in Bishkek where a pedestrian death or injury occurred in 2017. Of these there were 15 locations at which 4 or more pedestrians have been hit by a vehicle during the year. These locations are:

- The intersection of Akhunbaev and Sh. Rustaveli Street
- The intersection of Chuy Avenue and Fuchik
- B. Baatyr Avenue and Suyerkulov Street
- Ibraimov Street
- Jibek-Jolu Avenue and M. Gbardiya Blvd.
- Akhunbaev and B. Baatyr Street
- Elebesov and Vitebsky Street
- Chuy Avenue and Manas Avene
- Jibek-Jolu and Kurmanjan Datka Street
- Jibek-Jolu and Abdrakhmanov Street
- Moscow and T. Moldo Street
- Abdrakhmanov and Bokonbaev Street
- Chuy Avenue and Pavlov Street
- Manas Avenue and Bokonbaev Street
- Sadyrbaev and Valdai Street

A total of 72 individuals – each one going about their daily business – were killed or injured at these locations alone. Eight of them were children.

In total in Bishkek, 34 pedestrians were killed and 536 were injured during 2017.

Nearly one in four of these road victims - 22.3% - was a child under the age of 16.
METHODOLOGY: Pedestrian count and surveys

Working with EASST and the local Bishkek Traffic Police, PA Road Safety selected five of these most hazardous road crossings for closer examination.

The crossings chosen were:

- Kurmanjan Datka and Jibek-Jolu
- Elebesov and Vitebskaya
- Chuy and Manas
- Chuy and Fuchik
- Abdrakhmanov and Bokonbaev

We were concerned to discover a number of important things about how pedestrians interact with the road crossings: who the pedestrians are, whether they are crossing in the correct place and what times of day have the heaviest pedestrian traffic.

It is clear from the pedestrian survey that being able to travel around Bishkek by foot is tremendously important. During a total of 21 hours surveying at the five locations, our team counted 18,998 people crossing the road at these points. The busiest crossing was Kurmanjan Datka/Jibek-Jolu, followed by Chuy/Manas. Of the pedestrians counted:

- 53.5% were men and 46.5% women
- 5%, or one in 20, were children
- 87 of those crossing were adults with limited mobility
- A further 50 were adults pushing a child or other adult in a pushchair
- Finally, around 40 people crossing – mostly adults – were using bicycles

Overall less than one per cent of people crossing were people facing mobility challenges. This does not reflect the percentage of the population with special mobility needs. The small percentage of people with mobility challenges on the roads is likely to be a result of inaccessible crossings that are not pedestrian friendly preventing people from going out.

A 2017 survey of people with disabilities in Kyrgyzstan asked how easy it is for people with loco motor challenges or sight impairment to travel around Bishkek. Of those surveyed 85 per cent described moving about as pedestrians as either “impossible” (46%) or “very difficult” (39%). Among the main reasons for this feeling was the high prevalence of uneven and broken roads and pavements. Almost 90 per cent of respondents urged that if there could be one change to improve mobility for disabled people, it would be resurfacing work on roads and pavements.3

Our pedestrian survey took place at different times of the day and different days of the week to measure any significant differences in patterns of pedestrian traffic. While patterns differed for different streets, in general these crossings were just as busy

3 Disability, Mobility and Road Risk in the Kyrgyz Republic. EASST and PA Road Safety, 2018.
on weekends and evenings as during the morning ‘rush hour.’ This shows that Bishkek’s streets are just as important to pedestrian traffic for social engagement as they are for economic activity.

Our team conducted a small sample survey of pedestrians crossing at these five places – a total of 200 people - to get an impression of their attitudes. Most were crossing in the correct place, but we asked those who crossed improperly why they did not cross at the designated crossing point. Among reasons given, a prominent one was the absence of safe alternative crossing points. Many also mentioned the inconvenience of crossings for people with mobility difficulties or parents with pushchairs. Of the 200 people interviewed around half (98 people) answered ‘No’ when asked if they felt safe while crossing at these intersections.

To summarise: just 15 crossing points in Bishkek accounted for one in eight of all pedestrian deaths and injuries in the city in 2017. Nine out of ten pedestrian deaths and injuries occur during the winter months of October–February when nights are long and the weather can be poor. Finally, the number of pedestrians in Bishkek is very high, including at weekends. Their needs must be taken into urgent consideration in developing Bishkek’s ‘Smart City’ concept.
MAPPING PEDESTRIAN ‘BLACKSPOTS’

In many countries, including the United Kingdom, blackspot investigation and analysis is conducted routinely to reduce the number and severity of road collisions. A vital first step is to have good data, including the location of crashes, information about casualties and the time and date of the crash. We are fortunate that the Bishkek Traffic Police have provided us with this invaluable information.

Based on the data supplied by the Police, EASST and PA Road Safety have commissioned an interactive map of Bishkek to assist the local authorities and Government in devising a pedestrian safety strategy for the future. The map combines data on deaths and injuries with location data to give a picture of high-risk areas of the road network in Bishkek.

The Map (below) illustrates clearly the areas where pedestrians are most at risk, showing the main roads (rather than smaller side streets) to be the most dangerous places for pedestrians. Our developers have also produced a ‘heat map’ (page 8) showing clearly the highest-risk areas of Bishkek.

It is important to emphasise that whilst having good data is the first step and mapping historic crash locations may be the second, there are many other steps required to address blackspots where pedestrians have been killed or injured.
A good Blackspot Investigation Process includes:

- Using reliable data as a base to establish a list of blackspots and map their locations;
- Examining the crash data for each location;
- Preparing crash diagrams and analysing the factors in each incident (for example, lighting or drainage could be factors);
- Diagnosing the crash problem at that location;
- Inspecting the site (including, where possible, at the time of crashes and during day and night);
- Developing countermeasures – options for reducing risk at that location;
- Calculating the costs and benefits of countermeasures and developing a Benefit/Cost Ratio for each option;
- Preparing a Blackspot report;
- Getting approval for countermeasures;
- Safe implementation.

Another important element in developing countermeasures for crash blackspots is to work closely with the road police. It may be that speed or drink-driving enforcement is needed in particular locations, and these may even be the most effective countermeasures in some cases. With Bishkek’s wider strategy for camera enforcement there are opportunities to combine speed control with other countermeasures to dramatically reduce pedestrian deaths and injuries.

Finally, when implementing any engineering improvements, it will be important to ensure safe roadworks. Blackspots can become even more dangerous during construction works!
Based upon Bishkek Traffic Police collision data, our EASST/PA Road Safety teams have conducted a visual examination of five of the most dangerous road crossing points in Bishkek – the same locations where we conducted our pedestrian counts and surveys. These are:

- Kurmanjan Datka and Jibek-Jolu
- Elebesov and Vitebskaya
- Chuy and Manas
- Chuy and Fuchik
- Abdrakhmanov and Bokonbaev

Matt Chamberlain of EASST Expertise has been working closely with the European Bank for Reconstruction and Development, the Asian Development Bank and other lenders to assist them with safe road engineering and advise on engineering aspects of their many transport-related projects. He is currently a key road safety advisor to the CAREC Regional Road Safety Strategy, working regionally and with individual governments to improve road safety. Matt has reviewed dozens of photographs of each of these crossings in order to make some basic recommendations for each. Our aim is not to replace the need for a full blackspot analysis, but to raise issues that may be of concern in each case.

**Kurmanjan Datka and Jibek-Jolu**

The intersection of Kurmanjan Datka and Jibek-Jolu is tremendously busy, with heavy pedestrian traffic. In 3.5 hours over two days, our team counted more than 9,000 pedestrians crossing at this point. Both roads are wide with multiple lanes and motorised vehicles of every description. At each corner there are active businesses, including a fuel station with cars pulling in and out, a bank, a pharmacy and a fast-food restaurant.

There are a number of issues at this crosswalk that add to the danger for pedestrians including:

- Clients and customers crossing to use local businesses;
- Vehicles stopping to buy food from the restaurant;
- Vehicles parked nose-in along the road side near local businesses, reducing visibility of/for pedestrians;
- Vehicles potentially being blinded by sunlight;
- Very faded road markings;
- Marshrutki stopping to collect passengers, reducing visibility;
- Vehicles pulling in and out of the fuel station;
- Pedestrian signage that is not very visible;
- There are street beggars in the road creating risks for themselves and others;
- The interchange is signalised but with no crossing phases. That means pedestrians...
have no dedicated 'green time' to cross. Our team found many people crossing on red;
• Pedestrians also cannot see the high mast signals to know when traffic lanes are stopped.

**Recommendations:**

• Traffic signals should be updated with push buttons for pedestrians.

• If, because of traffic flows, pedestrians cannot be given their own crossing phase, a push button and a crossing display would at least inform them when they can cross. These should be installed on all arms of the junction as a priority.
Elebesov and Vitebskaya

Vitebskaya is a small street intersecting a much busier road, Elebesov. It is a residential area, with a couple of small shops and a tea shop. There are also large rubbish bins on one corner which people regularly visit to drop off bags of waste. There is also an auto repair shop where vehicles pull in and out frequently.

There are a number of hazards at this crossing, but the main issue is the speed of vehicles traveling down Elebesov Street. Our team filmed many cars going at unsafe speeds, posing a danger to pedestrians and other vehicles. There is no lane division, so if a pedestrian is in the road there is no refuge they can take from oncoming traffic. The pedestrian crossing signs are not high-

visibility and cannot be seen at night. There are also issues of vehicles being blinded by oncoming traffic.

Main hazards:

- The crossings are positioned either side and very close to the junction. For this reason drivers will be more concerned with looking for gaps in traffic (looking the opposite way) when joining Elebesov Street from Vitebskaya, and less focussed on pedestrians. They may be accelerating to join the road and be on top of pedestrians before realising.
- Although there are pedestrian crossings, these terminate in water drainage ditches, forcing pedestrians onto the road – particularly those with limited mobility and small children.
Recommendations:

- Surveys should be undertaken to see which crossing is more widely used and which more closely follows the desire line for pedestrians.

- Conduct a manual Traffic Turning Count to identify the dominant turning movements.

- Potentially remove one pedestrian crossing and move the other crossing slightly further from the junction with careful use of pedestrian guardrail to guide pedestrians to the crossing (depending on which crossing is retained).

- As a higher cost option, if there were incidences of crashes at the interchange involving turning vehicles then traffic signals could be considered with push button signals on one or both sides of the junction. Indeed, local residents and the Bishkek Road Police have been calling for this solution.

- Finally, pedestrian crossings should not end in drainage ditches. The ditches should be covered to allow pedestrians to wait and pass safely without standing in the road.

Chuy and Manas

At the intersection of Chuy and Manas pedestrians are meant to cross using the underpass and not at road level. There are a number of important buildings and shops and fairly heavy pedestrian traffic – with more than 1,000 people using the crossing every hour our team was there. Although there is a faint zebra crossing, there are low level barrier fences intended to prevent people crossing at those points. Our team observed that the roadside barriers were inadequate, and that people continue to cross at this
They also observed that 81% of people crossing at this intersection were crossing in the wrong place. Of all the five crossings, this was the one where pedestrians felt least safe (66% felt unsafe crossing).

The underpass was repaired in 2017, and we understand from PA Road Safety that pedestrians using the zebra crossing during the repair works may have caused a number of collisions that year. The repair works and cleaning of the underpass should improve pedestrians using it. The new underpass is clean, has lighting at night, and features shops and other services to make it more attractive for people to use. It will need to be kept clean and regularly maintained in future.

However, there are still important issues of accessibility for people with wheelchairs, elderly people and parents with pushchairs. In the 4 hours our team spent observing the crossing they found 5 people crossing dangerously with reduced mobility, pushing strollers or using a bicycle (a child). These people would find it difficult to use the underground passage. Nearly a quarter of people surveyed (22%) said they felt the crossing was inconvenient for wheelchairs or children’s buggies.

Evidence from around the globe points to the fact that people are normally reluctant to use underpasses. They can be very intimidating, particularly for women and particularly after dark. They tend to be more successful where people can see into them from the road (with no dark, blind walkways), when they are colourful, well-lit and spacious, and when there are useful amenities as part of the underground space such as shops or services. They MUST be protected from flooding and well maintained, so this will be an important issue for the City in future. Where possible, future underpasses should be adapted for bicycles too.

There are a number of important buildings at this intersection, including UN House, DemirBank (the Turkish International Bank), “Narodnyi” shops, the City Mayor’s Hall, the Philharmonic and three educational institutions including the International University of Kyrgyzstan. We recommend that this intersection is closely monitored to establish whether the high number of pedestrian collisions was a short-term problem to do with the repair works, or is a longer-term issue needing to be addressed. Our evidence is that pedestrians still try and cross the road at grade walking on the traffic side of the barrier. We also strongly recommend better barriers – perhaps in the form of planting or other street furniture – to prevent people crossing dangerously, and better accessibility for people with mobility needs enabling them to use the underpass.
Chuy and Fuchik

The intersection of Chuy and Fuchik is a complex one, with a triangular feature meant to enable vehicles to easily access Den Xiaoping Avenue from Chuy Avenue, from Fuchik St (the M39 airport road) and from Ryskulov Street, among other connections. In practice the intersection can be chaotic, with traffic turning in different directions and across lanes of oncoming traffic.

There is a traffic signal and pedestrian crossing on the corner of Fuchik where it intersects with Den Xiaoping and Chuy. There is also a very faint crossing on Den Xiaoping.

There is no pedestrian crossing between Fuchik and Chuy until you walk much further down the road. There is an underpass on Chuy Avenue, but it is not lit and is dark even in the daytime. People are afraid to use it.
Hazards include:

- High speeds often exceeding 80km/h;
- Roadside parking;
- Vehicles turning in every direction, including those accessing service roads;
- A painted traffic filter that people crossing use as a ‘pedestrian refuge’ on the corner of Ryskulov and Fuchik, but it does not provide protection for pedestrians;
- Shops and public buildings with busy pedestrian traffic;
- Push button signals operate only across Fuchik and not across Den Xiaoping;
- Very long crossing distances on all arms;
- Inconsistent use of road markings – zebra on some junction arms and not on others;
- Marshrutki and other vehicles stopping;
- Faint road markings;
- Inadequate street signage and not high-vis;
- No pedestrian crossing outside Hospital No.1 and no barriers separating the sidewalks with the roadway, encouraging pedestrians to cross in the wrong places;
- An underpass on Chuy Avenue that is not used because it is dark, threatening, and impassable for people with mobility difficulties. As it is near a medical centre accessibility is particularly important.

Recommendations:

- On Den Xiaoping, push buttons and pedestrian displays should be installed.
- On the northern arm of Fuchik it is obvious that pedestrians cross and are encouraged to do so by the gap in the pedestrian guardrail. This arm should either also have a crossing installed with push button signals, or appropriate pedestrian guardrail to try and prevent pedestrians crossing that arm of the junction.
- On the south side of Fuchik there is a hatched central strip to separate the traffic lanes. A pedestrian refuge with additional signals could be installed to help reduce crossing distances.
- The pedestrian display on the south side of Fuchik is also too far away and pedestrians could believe this is for Den Xiaoping. This should be rectified.
- The underpass should be rethought. It should either be greatly improved - with lighting, drainage, good maintenance, services to attract users and accessible entry, combined with adequate barriers - or alternative crossings are required.
The intersection of Yusap Abdrakhmanov and Bokonbaev Streets is a very active corner, with many shops, street vendors, services and residential buildings on all sides. There are also taxis parked and significant other parking along the streets. There is limited pedestrian signage, though the area is well lit at night.

As with other crossings, hazards here include:

- Faint road markings;
- Pedestrians are given no signal indication of when it is safe to cross;
- Inadequate pedestrian signage and in the wrong place;
- Poor lane discipline;
- Parked vehicles obscuring visibility;
- There are potential issues with the visibility of traffic lights;
- Speeding is an important issue here too.

Recommendations:

- The traffic signals should be updated with push buttons for pedestrians.
- If, because of traffic flows, pedestrians cannot be given their own crossing phase, a push button and a crossing display would at least inform them of when they can cross. These should be installed on all arms of the junction.
OVERALL RECOMMENDATIONS:

Tackling the most hazardous crossings

In this report we have revealed the high level of pedestrian deaths and injuries in Bishkek. Aided by Bishkek Traffic Police data, we have shown that this problem is most severe in winter months, and how it is particularly concentrated in certain areas – with 15 locations accounting for one in eight of all pedestrian collisions.

We strongly recommend that, to begin making Bishkek safer for pedestrian traffic, the following steps should be considered:

1. **Carrying out a full Blackspot Strategy in Bishkek**

Beginning with the 15 most hazardous locations, carry out a full Blackspot Investigation Programme to determine the causes and best countermeasures for improving safety at each location.

2. **Improving Visibility**

The high level of pedestrian deaths and injuries in Bishkek during winter months is striking. Higher road casualties in winter are generally caused by three factors – fewer hours of daylight, poor weather conditions reducing visibility, and more dangerous, for example, icy, road surfaces.

Improving visibility through smart street lighting could be part of the Smart City strategy and could help save pedestrian lives. Cities like Glasgow, in Scotland, are investing in lighting that is energy-efficient, turns on when needed, and assists with other issues such as community security. These solutions could be explored in Bishkek, where improved lighting is essential.

To improve pedestrian safety it is important, too, to improve the visibility of pedestrian crossings. This should involve the installation of larger, high-visibility crossing signs, better lighting focussed on crossings, and the use of reflective paint and other materials in crossing areas.

3. **Street signage**

Having clear, easy-to-see signs for drivers can help them make safe choices earlier – encouraging them to slow down, stop or change lanes in good time. This puts pedestrians at less risk, as drivers have more time to spot them and are less distracted. Improving street signage, including making important signs more visible at night and in bad weather, should be a key part of the pedestrian safety strategy.
4. Road Markings

In many cases, the road markings at the high-risk crossings we examined were faint and not easy to see either for drivers or pedestrians, including the zebra crossings. Visible road markings and zebras are essential for road safety. It is important to use high-quality paint that will hold up well in severe weather, particularly in Bishkek where there are so many winter casualties.

5. Speed control

Speed was an issue at more than one of the crossings we examined. The Bishkek Smart City programme allows for camera enforcement to control speeds. It is important to work closely with the Bishkek Road Police to ensure very strict enforcement at these high-speed locations where pedestrians are most at risk.

6. Barriers

Our investigation of the 5 high-risk crossing points found many instances of pedestrians crossing in the wrong places, often because there was no safe alternative. However, where pedestrians are found to regularly cross at hazardous locations, using barriers or plantations could reduce this. A Blackspot Investigation Programme should identify places where barriers are needed to protect pedestrians and prevent risky crossings.

7. Underpasses

Pedestrians the world over are reluctant to use underpasses unless they are very well designed, kept clean, well lit, well drained and include other attractions such as shops and services. We would not recommend using underpasses except where there are no other alternatives, and then they should be properly maintained at all times.

8. Accessibility

Underpasses are often inaccessible for people in wheelchairs, parents with push-chairs and people with other mobility challenges. Thinking about accessibility is vital for ensuring pedestrian safety. Ramps, tactile pavements, acoustic crossings and other features can make cities more accessible for all pedestrians. It is also vital to ensure adequate time for pedestrians – including slower pedestrians – to cross the roads at signalised crossings. Finally, as we know from the PA Road Safety/EASST survey of people with disabilities in Bishkek, repairing the surfaces of pavements would make an enormous difference for mobility and accessibility.

9. Traffic signals

Bishkek city is currently reviewing the placement of traffic signals, and this is excellent news. At the crossing on Vitebskaya – Elebesova, the absence of a traffic light has been a source of complaint by local people and the Bishkek Traffic Police. At this location and others, traffic signals might make all the difference in reducing road injuries.
CONCLUSION:
Making Bishkek a Pedestrian-Smart City

The City of Bishkek, under the Mayor’s leadership, is taking a brave and forward-thinking step in developing a Smart City concept to connect and protect local residents, businesses and visitors. Around the globe cities are facing new challenges, and city centres in particular are needing to re-examine their core activities and attractions. These challenges include the effect of internet shopping and global markets on local shops – with many cities finding shops and businesses closing due to international competition and a lack of local customers. This can have the effect of driving out local populations, who move to suburban settlements instead. City centres can become ‘hollowed-out’ with boarded up shops and little to attract tourists and residents while ‘out-of-town’ shopping complexes are developed relying on cars to bring customers. As cities become more reliant on cars, there are negative consequences for the health of local populations – more vehicle emissions and less physical exercise resulting in more illness and greater expenditure on health care.

Achieving Smart City status will help Bishkek avoid this future. Making Bishkek safe and welcoming for pedestrians should be part of future planning. Evidence from the UK and other parts of the world shows that investing in good pedestrian access and pedestrian-friendly city streets has substantial social and economic benefits in addition to the reductions in pedestrian death and injury, such as:

- Fewer vehicle emissions;
- Better air quality – particularly important for children;
- A healthier population;
- Well-planned walkways and public spaces can boost customer visits to local businesses by up to 40%;
- Streets that are safe for walking and cycling can increase retail sales by 30%;
- Cities that are walkable are more attractive to tourists, bringing in more income to local amenities;
- There is evidence too of positive impacts on local employment and incomes.4

Places designed for people have very positive benefits for businesses, local communities and other road users. Cities designed around cars are bad for car users too. A study by INRIX and the Centre for Economic and Business Research in the UK found that the average British driver spent 124 hours a year stuck in traffic – equal to 18 working days - costing the UK economy £21 billion a year in 2013.5 In London and other cities these costs are now being addressed by local authorities eager to reduce the economic toll, improve local air quality and make our cities better for people who live, work and travel there.

An important part of this is the concept of ‘Walkability.’ Walkable cities are places that are not only safe for pedestrians – they are inviting and bring economic vitality to city centres. It is important that they are pleasant and accessible for all segments society: for

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parents with small children and families, for elderly people, for people with disabilities and for small local businesses.

Walkable cities are particularly important for this last group. The World Bank estimates that, globally, small and medium-sized enterprises account for more than half of all formal jobs worldwide. Making it easy for their customers to visit safely, encouraging visitors to stop by unplanned and making the surrounding area more attractive for people has an enormous positive effect on their incomes and on local communities. We hope our report will add to the momentum for making Bishkek a smart, walkable and people-centred city with a vision. The opportunities afforded by speed camera enforcement for reducing risk to pedestrians and other road users are part of this. The coordination of emergency services – not a subject of this report – is also vital for road safety and can help to underpin pedestrian security. Smart water, power and waste management can also improve the environment for pedestrians and the efficiency of the city overall. Mobile communications connectivity can help people better navigate the city, can make public transport more user-friendly, and can link people to tourist attractions, retail outlets, restaurants, cafes and services. All of these can have a positive effect on pedestrian safety, particularly where walkable city streets are encouraged.

There is now an excellent opportunity to begin addressing pedestrian safety from the ground up, focussing first on the most dangerous intersections via an evidence-based strategy. Starting with addressing the worst pedestrian blackspots, Bishkek can work forward to building a people- and tourist-friendly city that is good for communities and local businesses.