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Back to basics

Presentation to APSE Celtic Park Glasgow
March 20th 2025

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Past president and Principal Consultant to IHE

Presentation will cover

- Preserve, prevent and protect
- Basic revenue funded maintenance

Funding Challenges

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Highway maintenance funding can be allocated from **capital or revenue** sources.

Capital is primarily for **improvements,** such as new roads, or redesign such as additional lanes, new traffic information and control systems or **structural renewal**.

Maintenance expenditure, mainly funded by revenue, covers **repair** of worn or damaged roads and facilities and can include both short-term patching or a permanent replacement.

In addition to maintenance of the road surface itself, the maintenance budget also includes the **cost of lighting, footway repair and cyclical maintenance such as cleaning and grass cutting.**

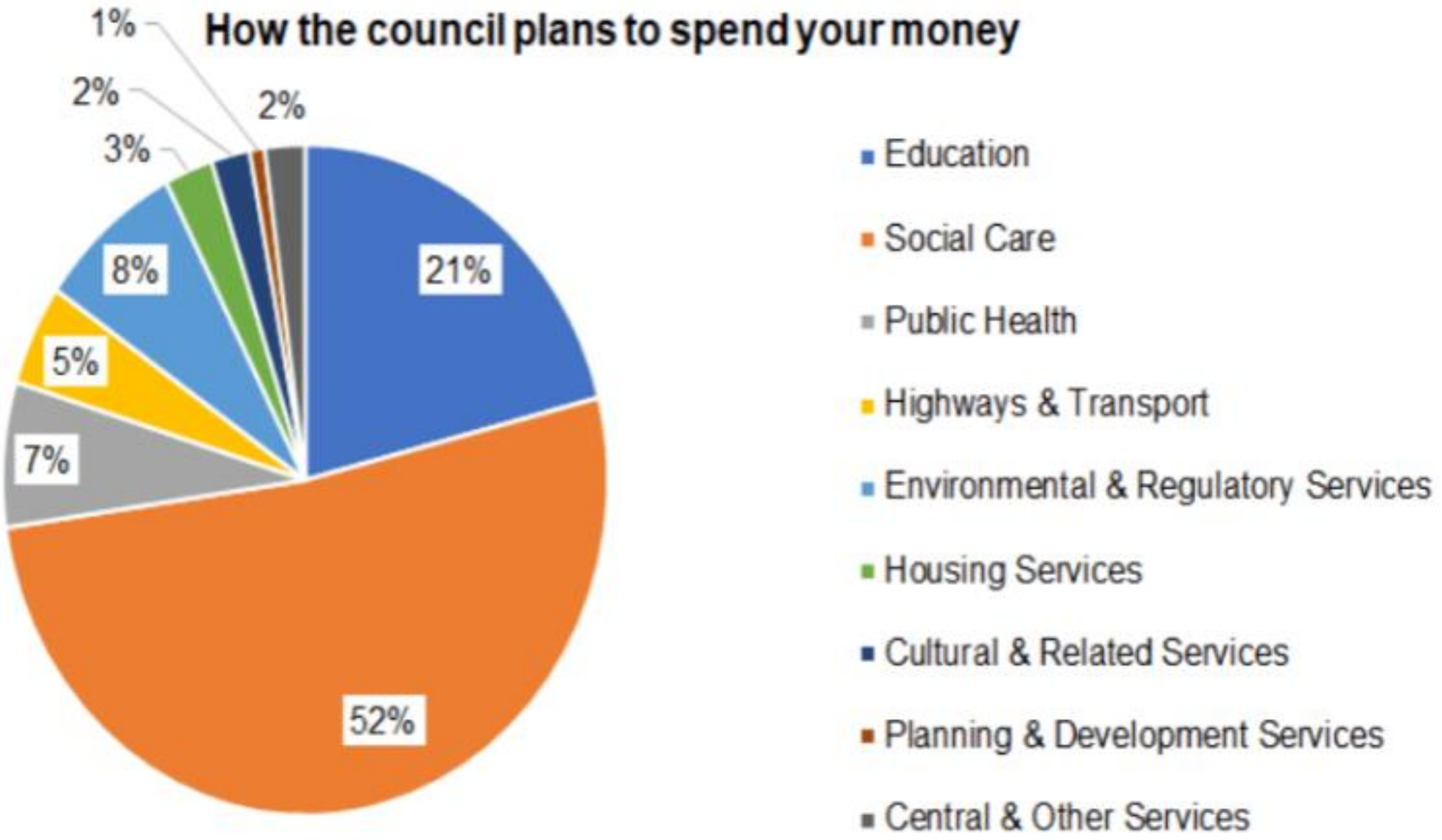
Local highways maintenance funding in England (excluding London)

£ millions

	Potholes funding[1]	HMB needs element	HMB incentive element	ITB[2]	Budget 2023	Network North highways maintenance funding[3]	Total
2020/21	650	725	151	258			1,784
2021/22	500	500	125	260			1,385
2022/23	500	500	125	260			1,385
2023/24	500	500	125	260	200	142	1,727
2024/25	500	500	125	260		142	1,527

Revenue funding is available via the community charge, business rates and funds provided by central government. Another source of revenue funding is the on-street parking account. Any surplus revenue generated from on-street parking after the operating and management costs have been accounted for can be spent on things like public transport provision, highway improvements and environmental improvements but not general highway maintenance work. This is funded by the Department for Levelling Up, Housing and Communities (DLUHC) through the revenue support grant.

In England most of the **capital funding** comes as a direct grant from central government with the remainder allocated by Council borrowing or from capital receipts, such as sale of land.
In Scotland most of the **capital funding** comes from Council borrowing or from capital receipts, such as sale of land.


How the council plans to spend your money
1%
2%
2%
3%
8%
21%
5%
7%
52%
Education
Social Care
Public Health
Highways & Transport
Environmental & Regulatory Services
Housing Services
Cultural & Related Services
Planning & Development Services
Central & Other Services

Asphalt Industry Alliance (AIA), Annual Local Authority Road Maintenance (ALARM) survey, 2023 REPORT

- Spending on routine and other maintenance has steadily declined in recent years from £1.9 billion in 2009/10 to £1.3 billion in 2022/23. Routine and other treatment includes expenditure on environmental, safety and routine maintenance (excluding unplanned patching) on roads in addition to winter service.
- This is important because effective asset management requires planned, preventative maintenance, which involves resurfacing at regular intervals. The consequence of delaying essential work on roads is often to increase the bill for fixing the problem in the future. For example, in 2022/23, the planned cost of filling a pothole was £50.17, compared to the reactive cost of £73.49.30

Capital funding challenges

- Political vanity or long-term legacy disaster
- Capital allocation but no revenue funding to maintain
- Increase number of assets

“Glasgow and her citizens are suffering for these vanity projects”
15th June 2023 Glasgow Times

Revenue funding opportunities

- **Scottish council rakes in £47m from car parking - here's which council charges the most**
- Glasgow City Council increased city centre parking charges in April 2024 from £1.40 to £1.60 for 15 minutes, generating a £15.7 million profit from a total parking income of £34.2 million
- **York council to start fining drivers for traffic offences after winning new powers**
- Funds generated from penalty charge notices will be restricted for use only for specific measures including highway repairs, public transport provision and other environmental projects.

Reactive or proactive response

- **Reactive**
- One off funding
- Mass clean up
- Do the same
- More claims

- **Proactive**
- Asset management knowledge and practice
- Increase preventative routine activities
- Prepare for weather events
- Risk based approach
- Better NRSWA supervision

PRESERVE

Marshall Report 1970 *A central theme of the report was the importance of preventative maintenance, emphasizing the need to identify and address potential problems early on to avoid costly repairs later.*

Road preservation is an early life preventative treatment which stops water ingress and surface deterioration on roads that are still in a good condition.
As part of the life of a carriageway, the road surface will become oxidised with microcracking beginning to form and leading to an increase of minor surface imperfections.
Road Preservation is a low-cost early life intervention to seal micro-cracks and prevent water ingress from causing more severe damage.

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PRESERVE

General maintenance which attracts the most attention when the following activities are neglected

- Highway Cleansing
- Drainage
- Grass cutting, weed control, hedge trimming and tree pruning
- Surface defects
- Painting and cleaning

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“I was scouting highway outfalls in the rain yesterday, and I spent over an hour checking 3 outfalls off the M6 and M62, but despite the heavy rain, the outfalls showed no sign of discharge.
This made no sense!
Where was all the runoff from the motorway and why wasn't it rushing out of the outfalls?
I set off to investigate and found the reason. All the drains on the motorway were blocked and the hard-shoulder was partially flooded. The runoff was heading North-West to another outfall somewhere which I couldn't find. So not only is the drainage infrastructure here posing a huge risk of toxic pollution, failure to maintain it properly means that it doesn't function as intended. “

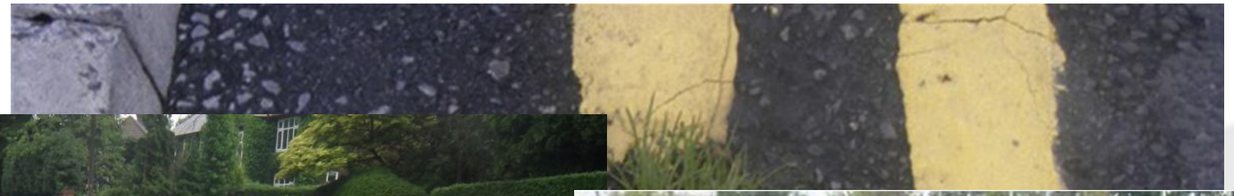
Highway Cleansing

Channel sweeping

Effects of inadequate cleansing

- Debris can obstruct road markings
- Forms a solid which reduces the skid resistance of road surface
- Possible damage to road vehicles
- Drainage is badly affected
- Ponding on carriageway
- General unsightliness

Drainage



Grass and vegetation

Weeds are taking over and rendering pavements unsafe, warns Brighton councillor

“The cost of leaving weeds untreated could be as high as £60 million in Brighton and Hove, councillors were told during the annual budget meeting.”

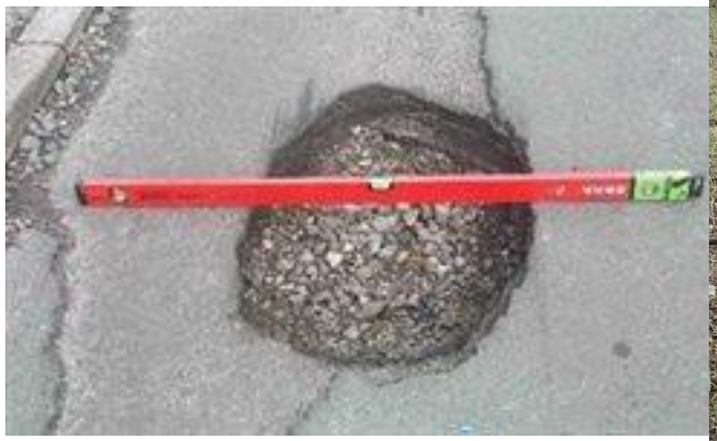
The figure emerged when Labour councillor Tim Rowkins who said: *“Uncontrolled weed growth is one of the primary causes of damage to our pavements.”*

Why cut grass?

From a Highway's Authority perspective, grass is cut for safety purposes to maintain visibility for highway users and to ensure that road widths are not reduced by overgrowing vegetation.
Section 96 of the Highways Act 1980 does not define either the frequency at which grass should be cut, nor does it describe the maximum height it may grow to before it is cut. However, grass verges should be maintained so that it does not create
‘such a situation as to hinder the reasonable use of the highway by any person entitled to use it, or so as to be a nuisance or injurious to the owner or occupier of premises adjacent to the highway’.

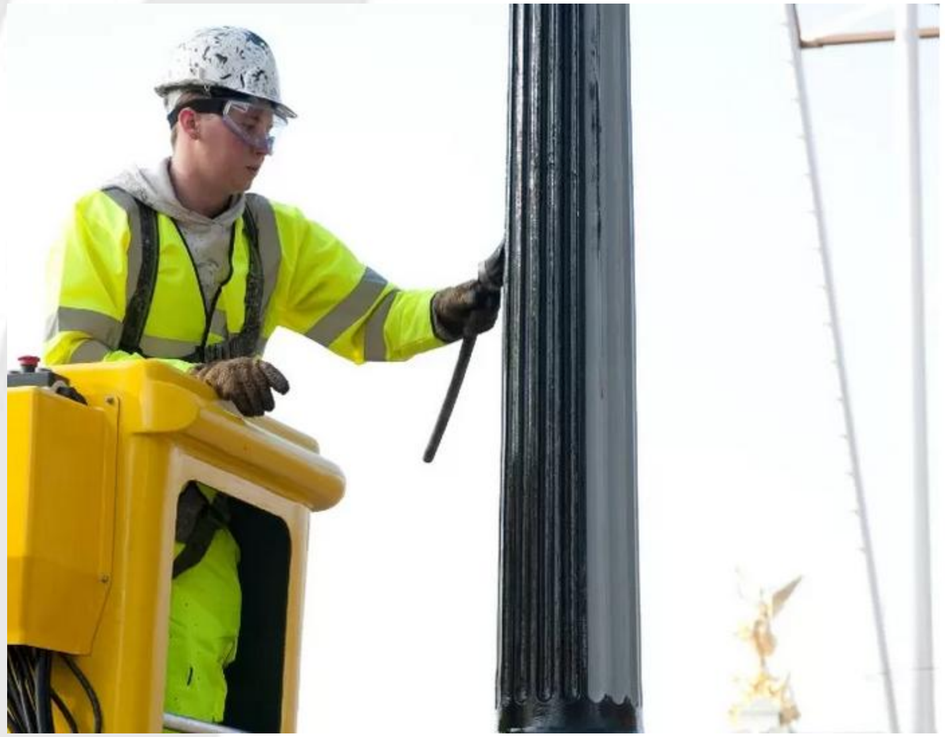
Surface defects

There are numerous types of defects that can form on our roads including deep potholes, shallow potholes, surface deterioration, edge failure, cracking, crazing, rutting, and subsidence.



Painting and Cleaning

D.5.4.1. Lighting columns and illuminated traffic signposts can be protected from the effects of the weather, pollution and other environmental elements. Steel lighting columns and illuminated traffic signposts will quickly deteriorate if they are not provided with a protective system such as hot dipped galvanizing.
Further protection may also be given by the application of an additional protective system such as paint or powder coating.



PREVENT

- Preventative Maintenance is extending the life of the existing road surface by preventing potholes and follows Department for Transport guidance that 'prevention is better than cure'. Surface treatments are laid directly on top of the existing road without removing the original material.

Includes
- Slurry sealing
- Micro asphalt
- Carriageway sealing
- Surface dressing

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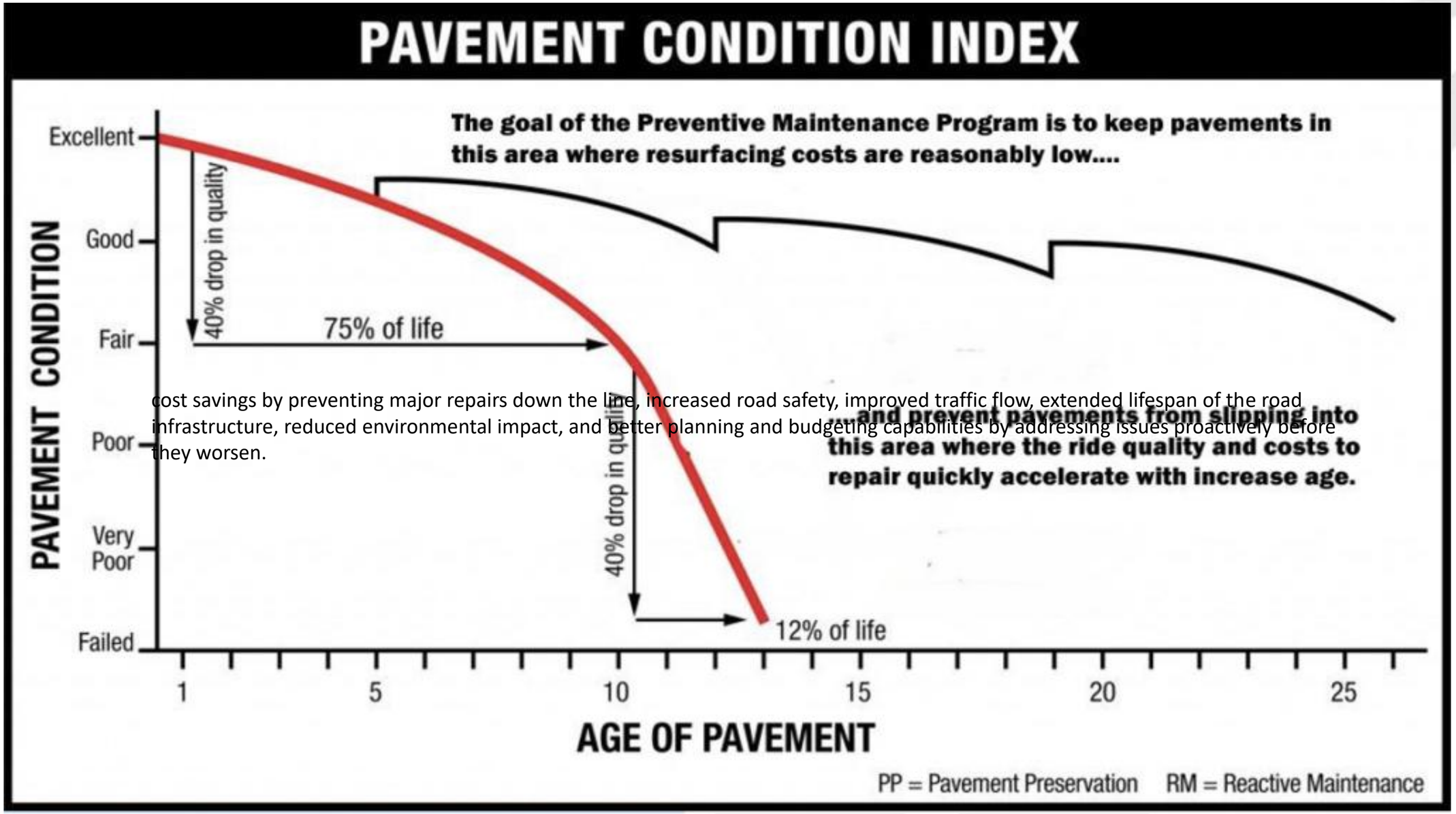
RMS
MX09 WBF



cost savings by preventing major repairs down the line, increased road safety, improved traffic flow, extended lifespan of the road infrastructure, reduced environmental impact, and better planning and budgeting capabilities by addressing issues proactively before they worsen.

Benefits of preventative maintenance

cost savings by preventing major repairs down the line, increased road safety, improved traffic flow, extended lifespan of the road infrastructure, reduced environmental impact, and better planning and budgeting capabilities by addressing issues proactively before they worsen.

This is a planned strategy of cost-effective treatments to an existing highway to preserve it, prevent water ingress, reduce the rate of future deterioration and increase service life, without increasing its structural capacity.

PROTECT

The ongoing work done on roads and highways to ensure their safety and functionality by preventing deterioration, repairing damages like potholes, resurfacing worn pavements, maintaining signage, and managing roadside features, ultimately protecting road users from potential hazards and extending the lifespan of the infrastructure.

Protect highways from water ingress during maintenance, key strategies include

- **proper drainage design with adequate gutters and channels**, **regular surface treatments like sealants and surface dressings,**
- **maintaining the integrity of joints and cracks,**
- **inspecting for damage after heavy rain**, and
- **utilizing specialized waterproofing materials where necessary;**

all aimed at preventing water from penetrating the road base and causing damage like potholes and structural deterioration.

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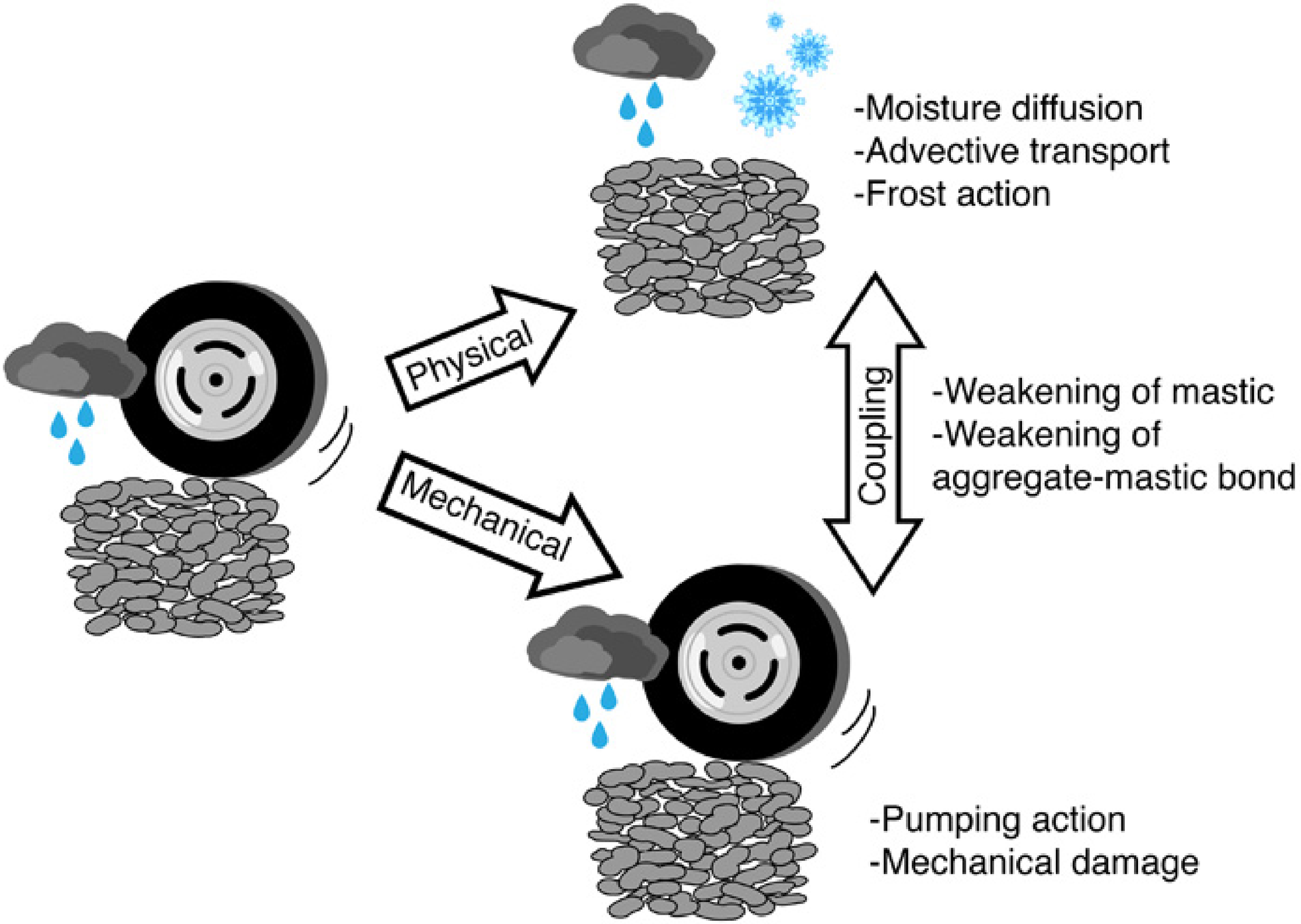
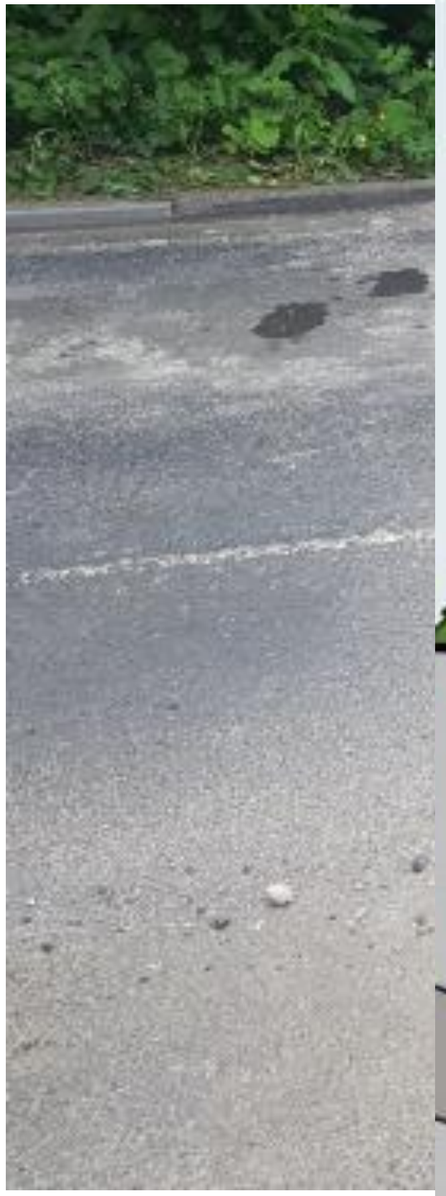

-Moisture diffusion
-Advective transport
-Frost action
Physical
Mechanical
Coupling
-Weakening of mastic
-Weakening of
aggregate-mastic bond
-Pumping action
-Mechanical damage

sed
of
ent

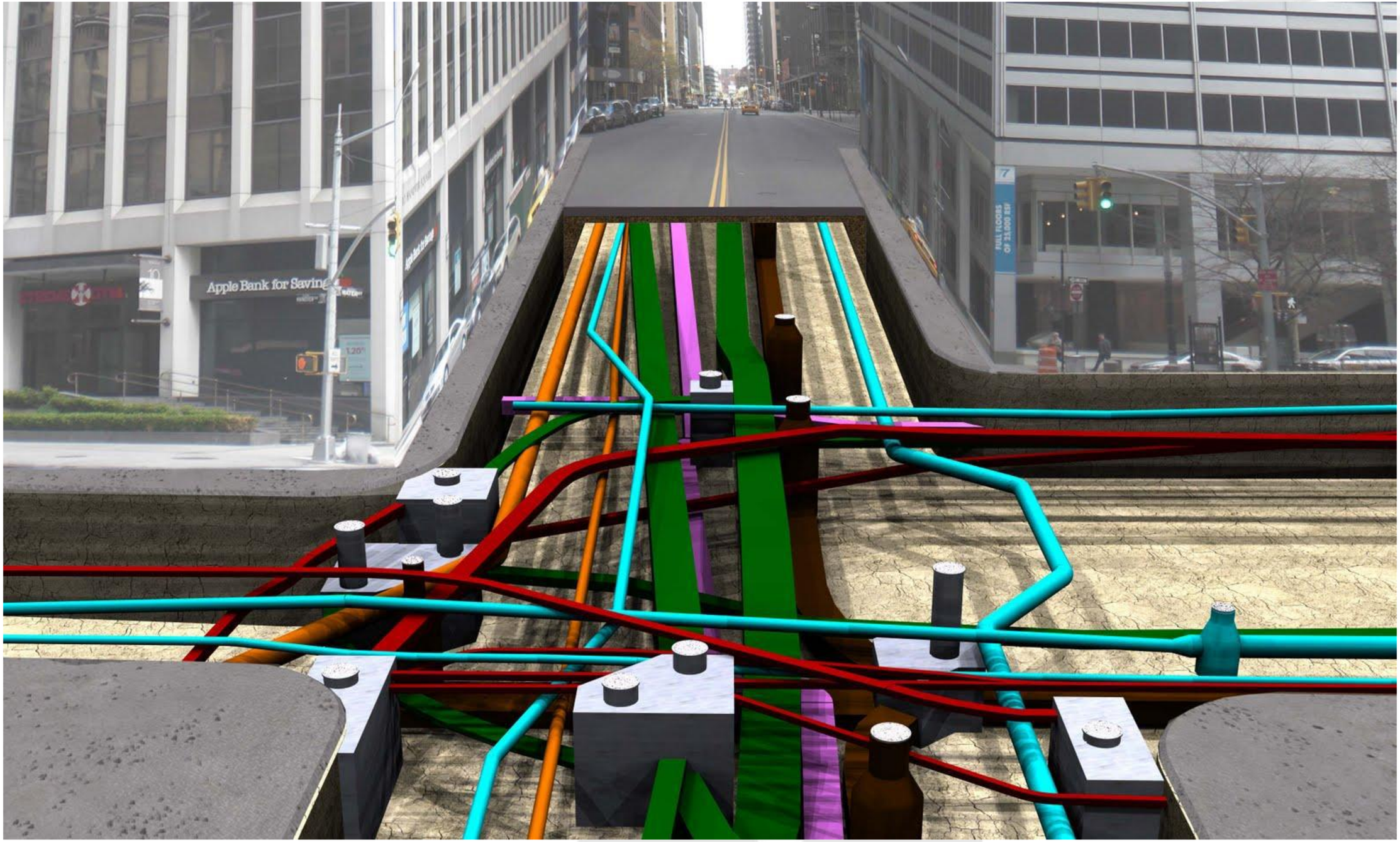

Unsuitable for long vehicles
STOP
IGNORE
SAT NAV / GPS
U-DRIVE

Gum busters

Utilities

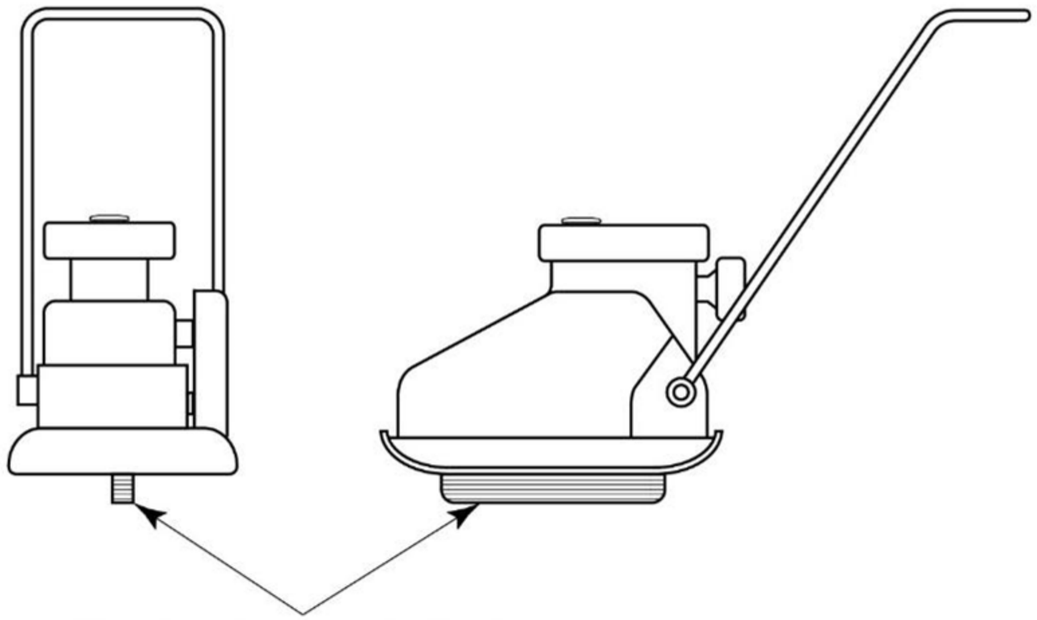



I'm tired of redoing work...
So maybe we should make the effort to get it right first time. After all, that's what we get paid to do


Apple Bank for Saving
7
FULL FLOORS
OF 25,000 RSF

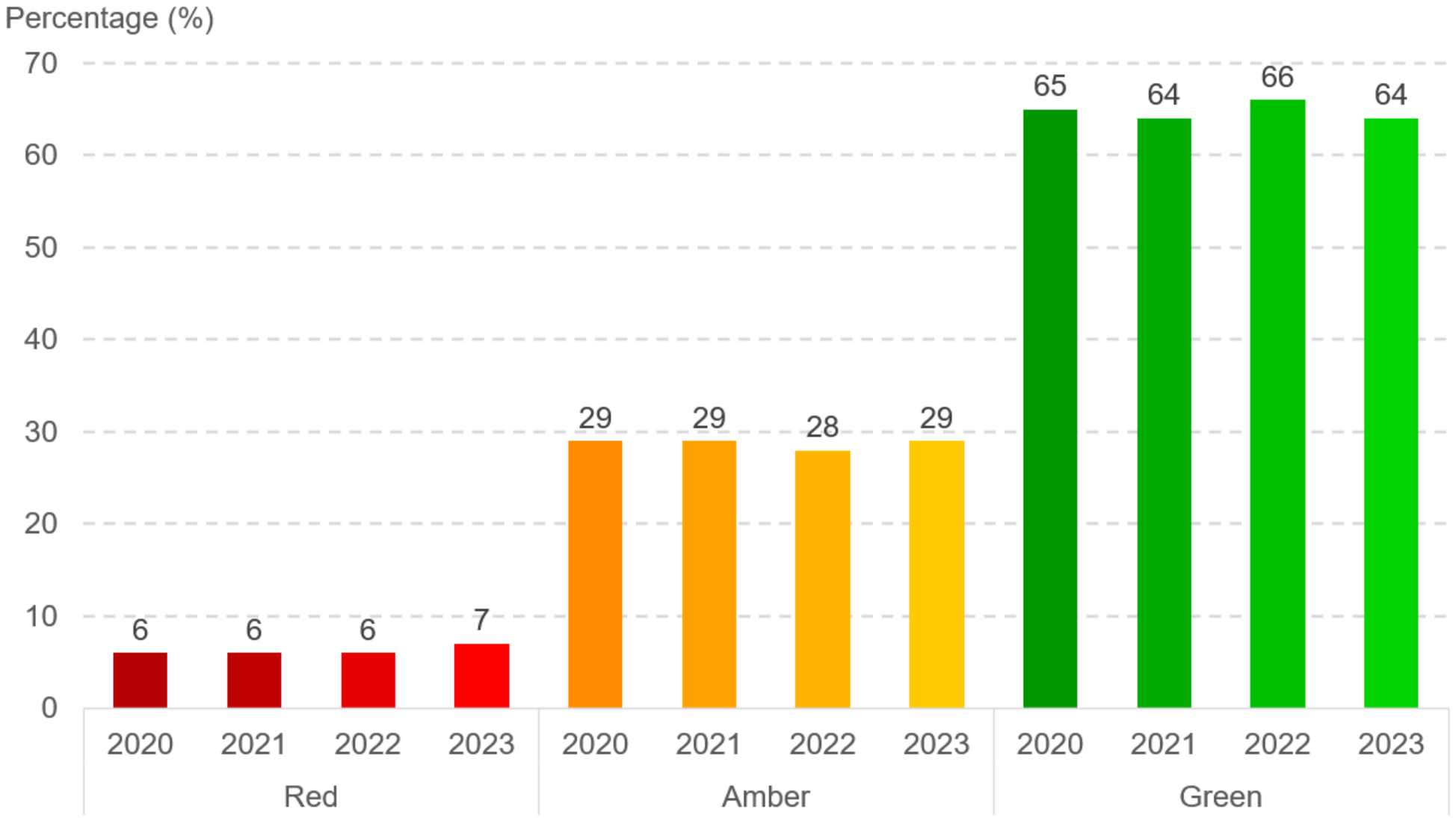
Micro trenching

Figure NG6.1 Modified vibrating plate compactor



The method of cutting/excavation used for micro trenching can have a significant impact on the ability to achieve an effective reinstatement. The greatest threat to effective reinstatement is the presence of excess moisture. For this reason, a dry cutting process using a vacuum recovery system for the arisings is preferred.

Road condition indicators in England 2020-2023



DfT Monitoring categories for 2023

- **Strengthening**, consisting of reconstruction excluding in-situ recycling, and in-situ recycling,
- **Resurfacing**, consisting of resurfacing, overlay, and thin surfacing,
- **Preservation**, consisting of surface dressing, micro surfacing, and preservation and rejuvenation.
- **Do nothing or Monitor,** allow some underused parts of the network to remain in their current condition

conclusions

- **Proactive Approach**
- Asset management knowledge and practice- embed in organisation
- Increase preventative routine activities - do the basics
- Prepare for weather events – flooding , wind and winter
- Risk based approach – document the RBA
- Better NRSWA supervision –get it right first time,
- Longer maintenance settlements – 6+ years
- Short term pain
- Long term gain

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Thank you for your time

Any questions please contact membership@theihe.org or visit our website at www.theihe.org

Conclusions

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