RIMS
Roading Infrastructure Management Support

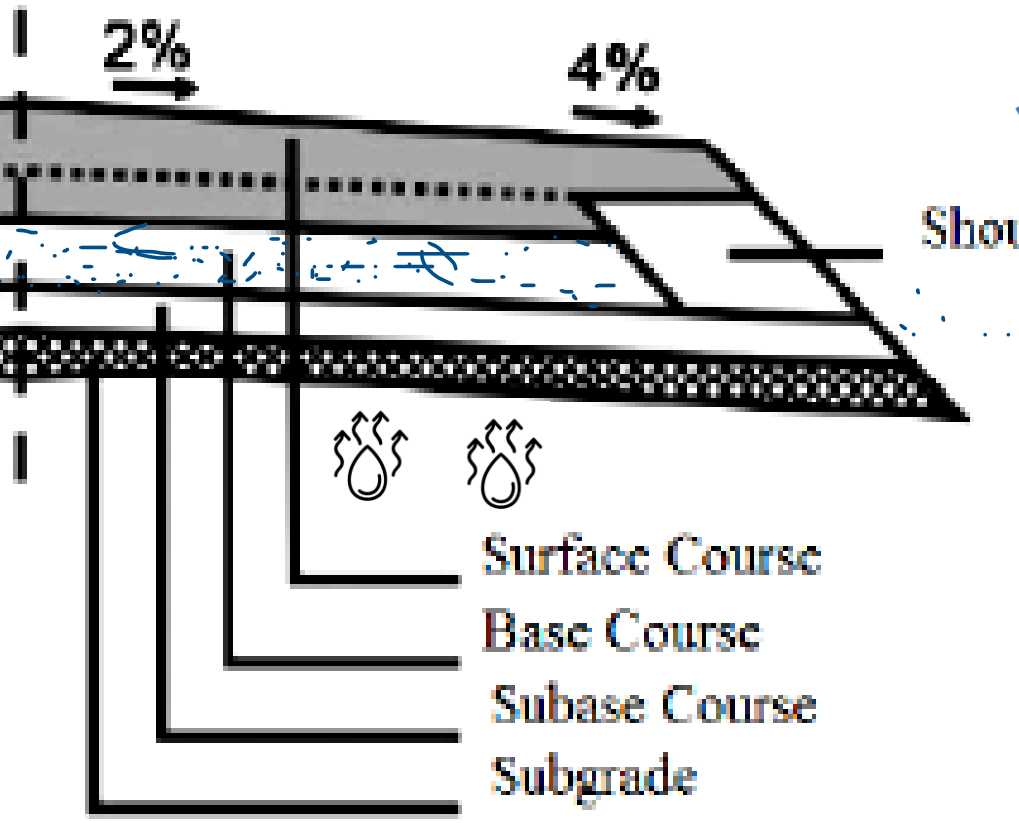
in association
IDS
Infrastructure
Decision Support

# Flushed Away

Michael He
Product Growth Engineer
Road Science

# What




2%
4%
Shoulder
Surface Course
Base Course
Subase Course
Subgrade

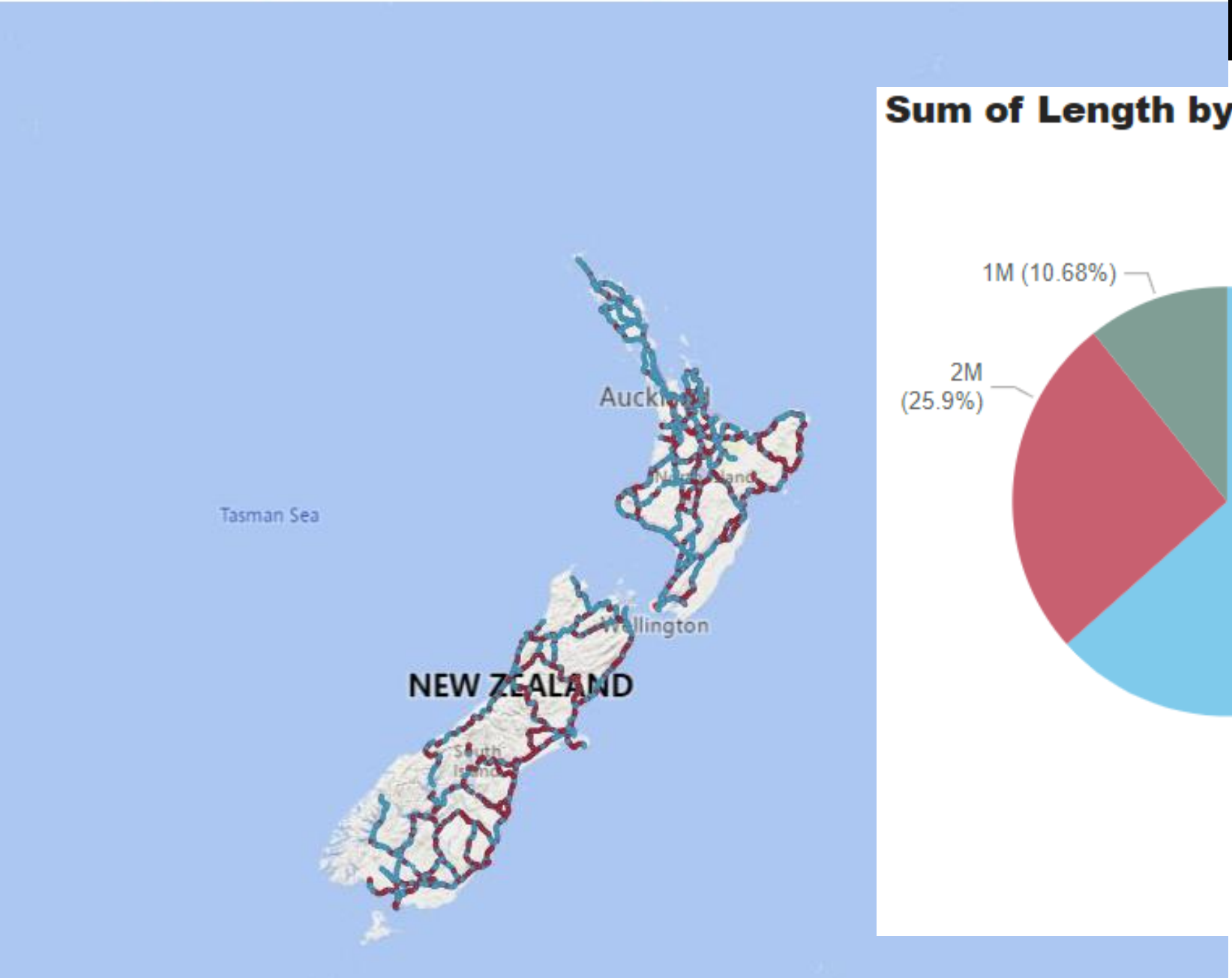
15°C

40°C


00:00:00
40C

# Road Summary

ce Reason Cracking Flushing (all loss of macrotexture) Polished Stone (from SCRIM)

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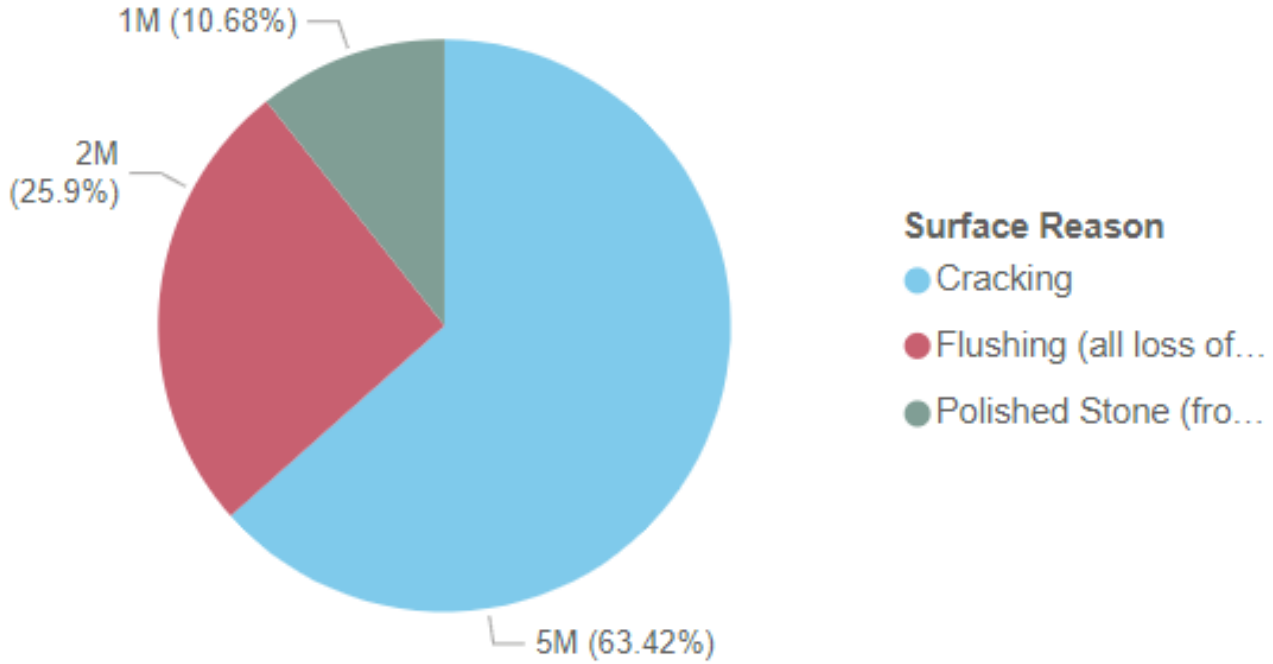
## Sum of Length by Surface Reason



# Maintenance Summary

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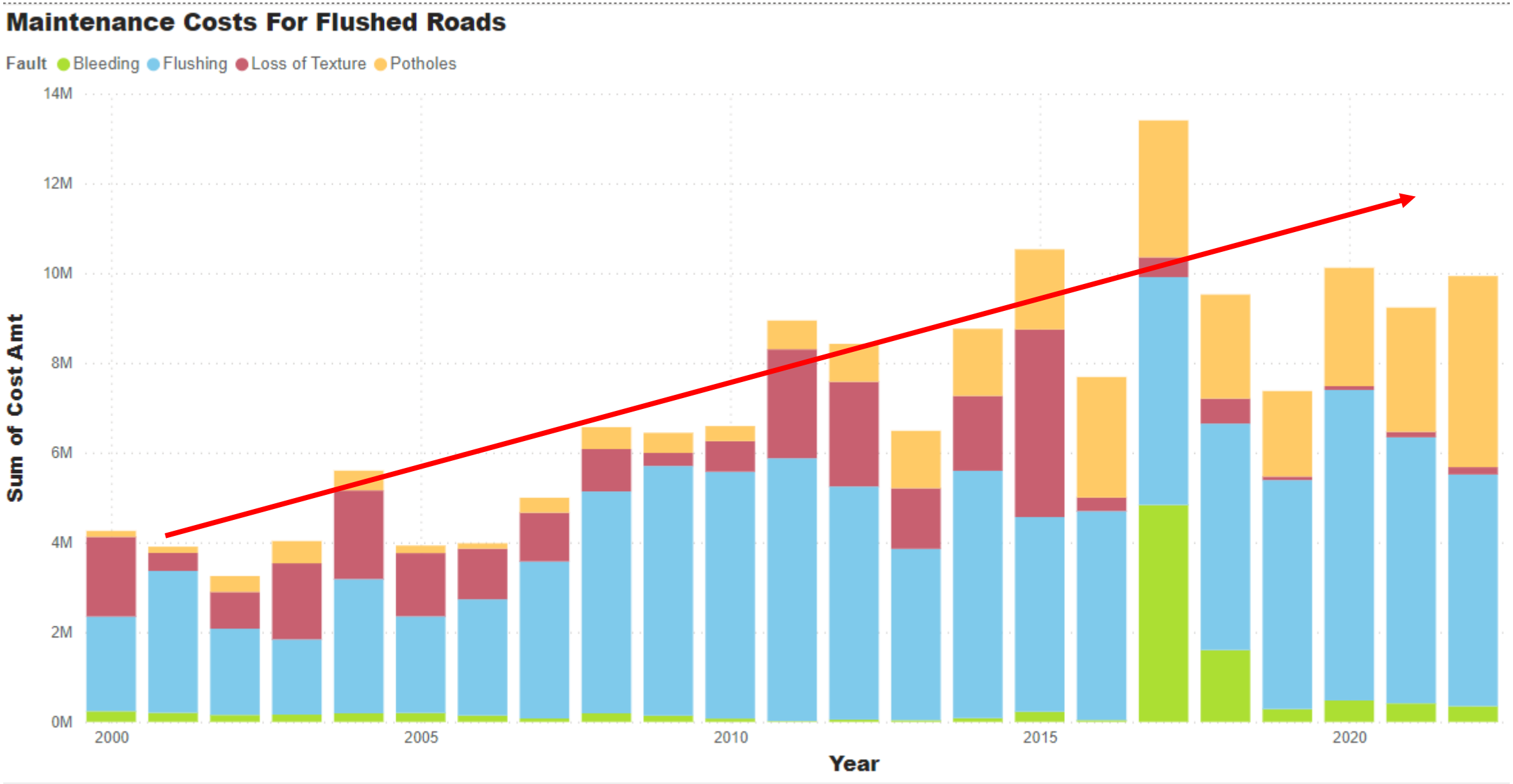

# How do we deal with it?

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Treatment of flush surfaces

| Season | Summer | Spring / Autumn | Winter | Life in years | Cost /m2 |
|---|---|---|---|---|---|
| Air Temp | > 20o C | > 15o C | >10o C | | |
| Pavement Temp | > 30o C | > 25o C | > 15o C | | |
| Dry chip | 🟢 | 🔴 | 🔴 | 3 to 6 | Low |
| Hot chip | 🟢 | 🟠 | 🔴 | 3 to 6 | Low-Med |
| Pre-coated chip | 🟢 | 🟠 | 🔴 | 3 to 6 | Low-Med |
| Hot pre-coated chip | 🟢 | 🟢 | 🟠 | 3 to 6 | Med |
| Combination and Sandwich seals | 🟢 | 🟠 | 🔴 | 4 to 10 | Med |
| Geotextile seals[1] | 🟢 | 🟠 | 🔴 | 4 to 8 | Med-High |
| Water cutting[2] | 🟢 | 🟢 | 🟢 | 1 to 5 | Med-High |
| Asphalt Overlay[3] [4] | 🟢 | 🟢 | 🟠 | 6 to 10 | High |
| Recycling[5] | 🟢 | 🟢 | 🟠 | 15 to 25 | Very High |
| Granular Overlay | 🟢 | 🟢 | 🟠 | 40+ | Very High |

- Current Waka Kotahi Treatments

- No long-term treatments except rebuilds

# What is the true cost?

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| | Cost/m2 | NZTA Life in Years | Sealing Practitioner | Comment |
|---|---|---|---|---|
| Dry Chipping | Low | 3 to 6 | 1 to 2 | Binder will rise through next season |
| Hot Chipping | Low-Med | 3 to 6 | 1 to 2 | Binder will rise through next season |
| Precoated Chip | Low-Med | 3 to 6 | 1 to 2 | Binder will rise through next season |
| Hot Precoated Chip | Med | 3 to 6 | 1 to 2 | Binder will rise through next season |
| Combination and Sandwich Seals | Med | 4 to 10 | 1 to 5 | Adding more binder to an unstable surface |
| Geotextile Seals | Med-High | 4 to 8 | 4 to 8 | Slows the movement of water, and stops movement of chip |
| Water Cutting | Med-High | 1 to 5 | 1 to 5 | Adds water to the structure? Strips all binder |
| Asphalt Overlay | High | 6 to 10 | 6 to 10 | Adds binder |
| Recycling | Very High | 15 to 25 | 15 to 25 | Needs to manage water for future |
| Granular Overlay | Very High | 40+ | 40+ | Needs to manage water for future |

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# How does Road Science Antiflush Stack up?

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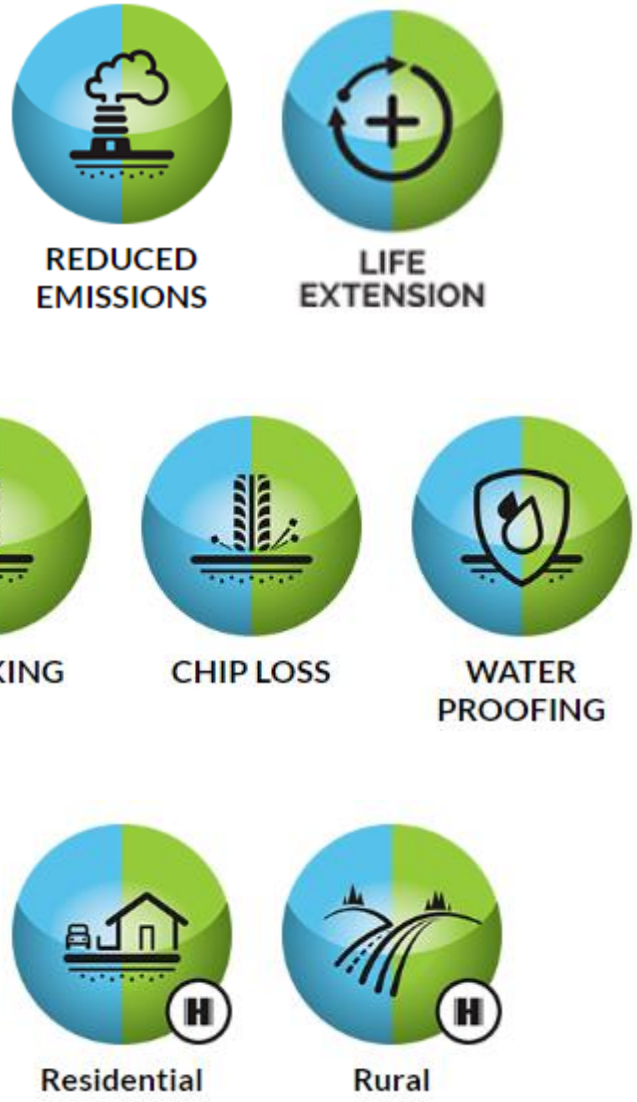
## Anti-Flush Seal

- Standard Chipseal, change in binder
- Stops movement of Water
- Standard emulsion equipment
- 140C Softening Point
- Soft when cold
- Hard when hot



# How does it stack up?

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Anti-Flush

40˚C

130/150

# Performance

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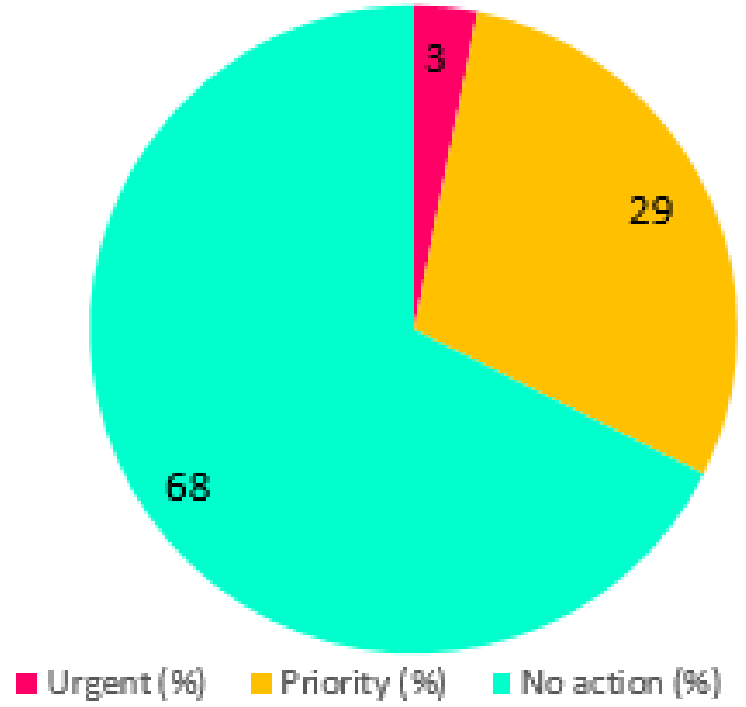
## SH3A, Taranaki, March 2022

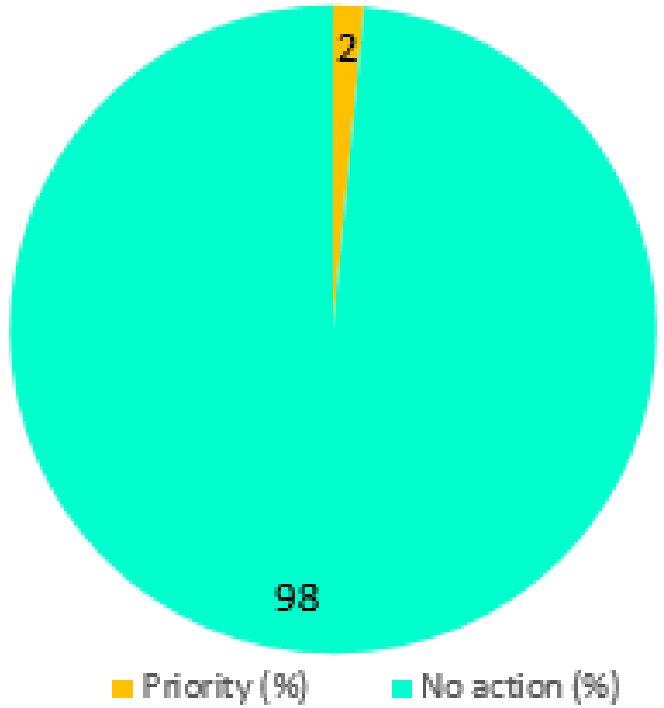
# Performance: Macrotexture

## SH3A, Taranaki, March 2022

Standard Seal

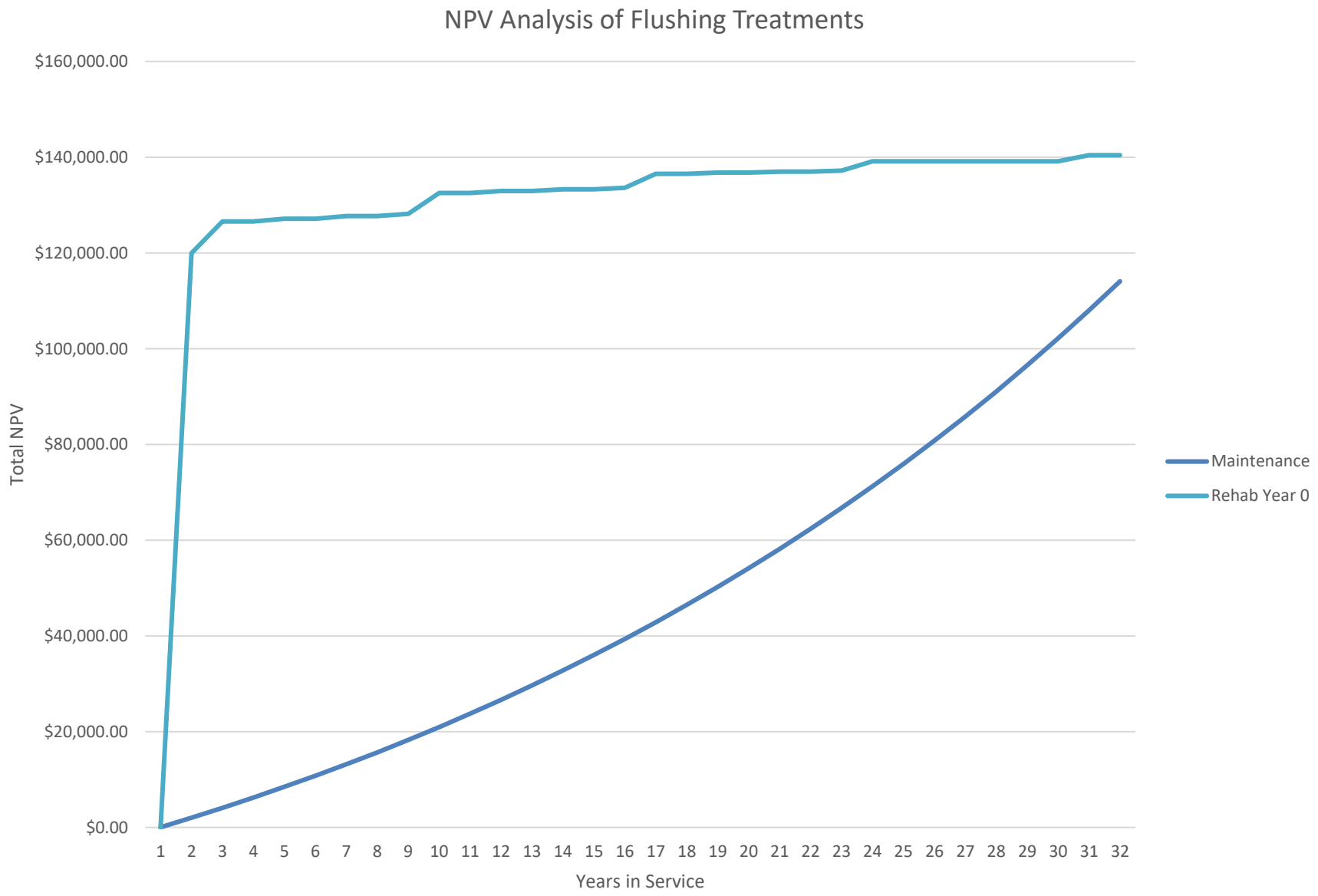



Anti-Flush Seal




March 2023 (1 Years)

# NPV Analysis



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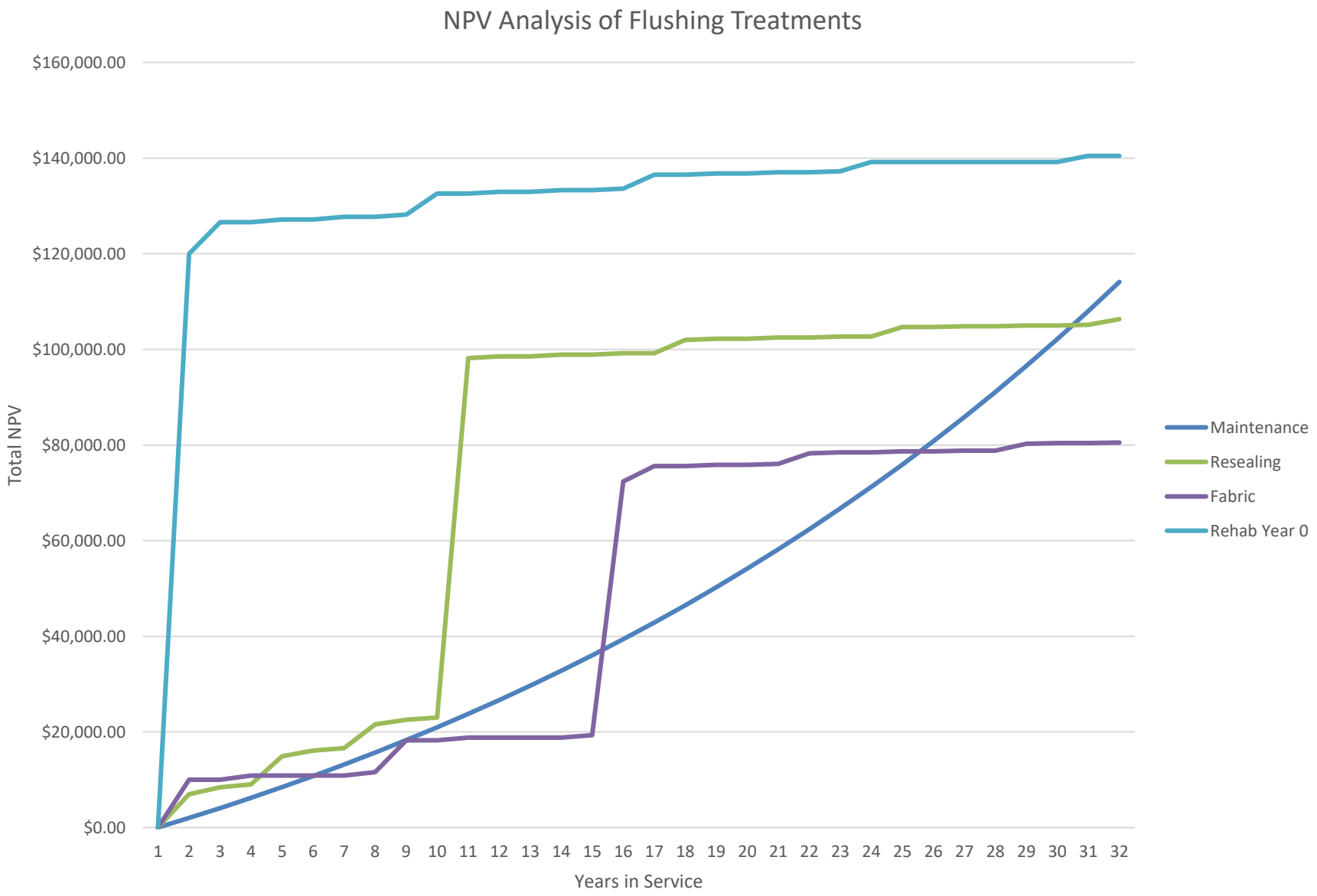

# NPV Analysis

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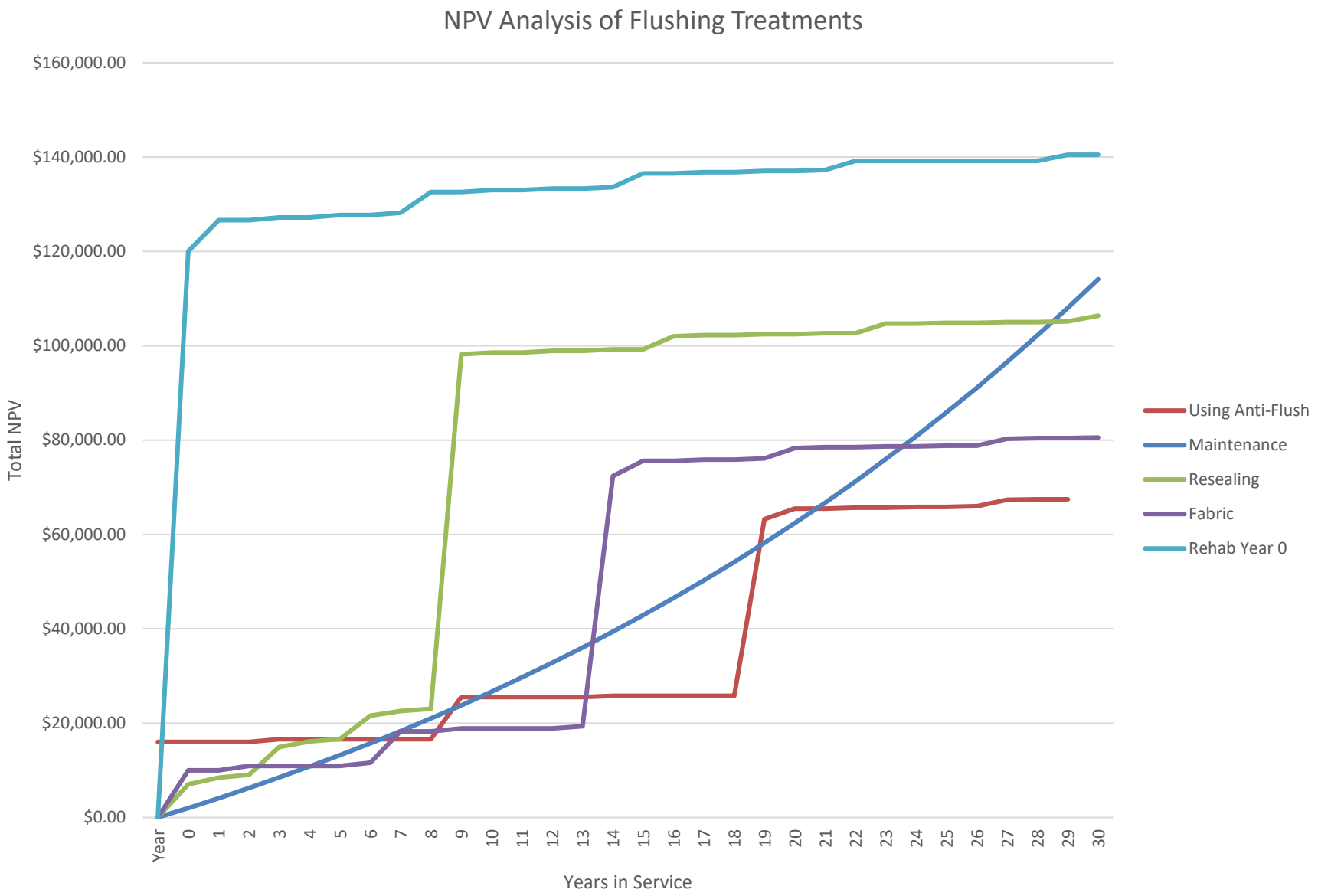
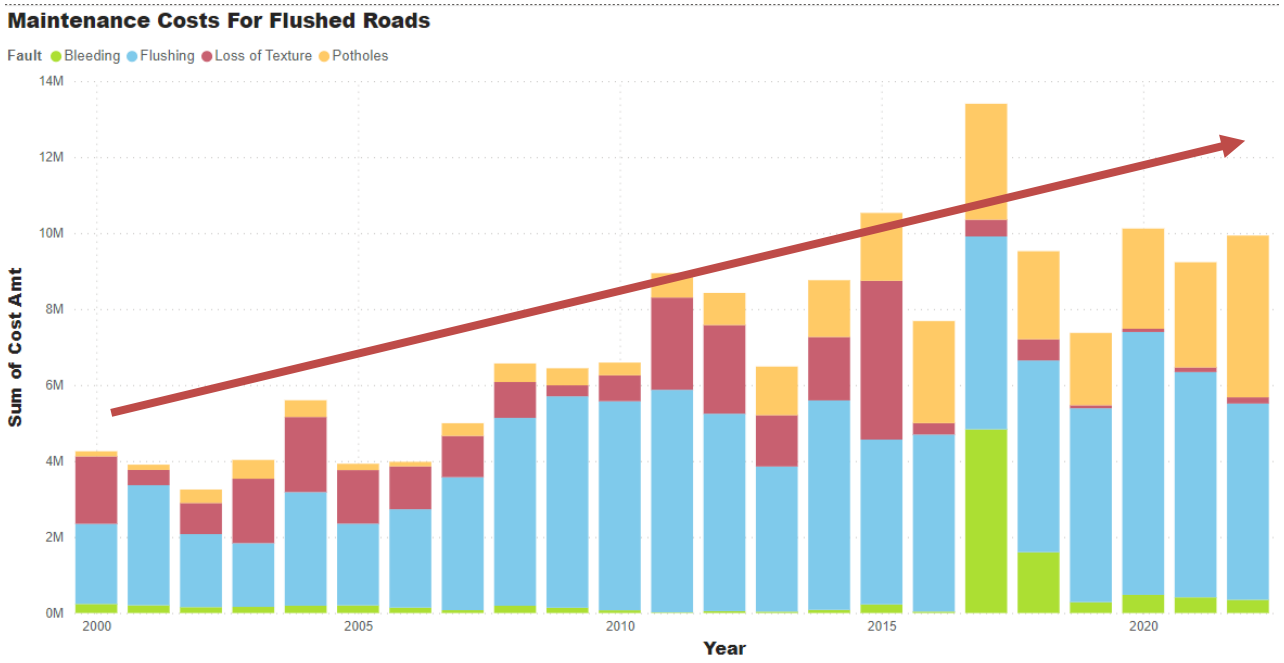


What does the Future of flushing Look like?

- Increasing temperatures?
- Increased rainfall?
- Increase in Flushing




7.05M
AverageTotalCost

4.23M
AverageFlushingCost

# Questions?

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Road Science