

APPENDIX E: RISK MANAGEMENT

Corporate Asset Management Risk Register

Risk Type	Risk Description	Gross Risk				Current Mitigation Strategy	Net Risk				Management Option	Responsibility
		Likelihood	Consequence	Factor	Risk Assessment		Likelihood	Consequence	Factor	Risk Assessment		
Delivery Risks												
Communication	Ownership of risks not clear leading to ineffective management.	2	3	6	Medium	Risk management plan clearly identifies those responsible and actions conveyed to individual owners.	1	3	3	Low	Delegate responsibilities in writing	Asset Planning Engineer
Contract management	Inappropriate specifications resulting in quality/cost issues.	2	2	4	Low	Corporate quality system is in place to control specifications	1	2	2	Low	Roading Team to review construction contracts prior to letting Term maintenance contracts reviewed and updated in year prior to re tendering	Roading Manager Roothing Engineer
Contract management	Errors in claims from contractors/consultants leading to over/under expenditure.	2	2	4	Low	Using RAMM Contractor to minimise this risk for maintenance contract.Corporate quality system in place to manage contract payments. Roothing team review all contract payments prior to approval	1	2	2	Low	Review claims processed by Programme Delivery Team and consultants. Review claims process by roading team	Roothing Engineer Asset Planning Engineer
Health & Safety	Failure in meeting hazard identification requirements leading to penalties to council.	3	3	9	Medium	There are independent audits for road safety and Temporary Traffic Management Plans. Routine inspections by both road maintenance contractor and roading staff. Active management of service requests. There is a corporate health and safety policy in place. The road maintenance contract requires contractor to have a hazard register	2	3	6	Medium	Continue to manage independent audits, Continue to actively manage Traffic Management Plans for all activities on the road, Continue to manage the maintenance contract hazard register and risk register.	Roothing Manager Roadng Compliance Engineer Roothing Engineer, Road Maintenance Engineer
Health & Safety	Failure to identify and improve road safety and deficiencies	3	4	12	High	There are independent audits for road safety, and for Temporay Traffic Management Plans. Routine inspections are carried out by both road maintenance contractor and roading staff. Crash record history out of CAS is monitored	2	3	6	Medium	Continue to manage independent audits, Continue to actively manage Traffic Management Plans for all activities on the road, Continue to manage the maintenance contract hazard register, Continue to monitor the crash history from CAS	Roothing Manager Roadng Compliance Engineer Roothing Engineer, Road Maintenance Engineer
Health & Safety	Inadequate monitoring of contractor OSH responsibilities leading to penalties to council.	2	3	6	Medium	All Council contracts require the Contractor to have a H&S plan that must be approved by the Council have regular audits.	1	2	2	Low	Check there is a formal and documented audit and monitoring system in place for all roading contracts.	Project Delivery Team Roothing Engineer
Operational	Poor standards or lack of best practice leads to deficiencies in network.	3	3	9	Medium	Industry best practice specifications are used Contactors are required to have a contract quality plan in place Testing carried out prior to approval	2	2	4	Low	Carry out more formal audits of the contract quality system and random verification testing and document Buy a thermometer for testing hotmix in truck before laying	Roothing Engineer, Programme Delivery Team
Operational	Inadequate management of worksites including traffic management leading to injury/crashes.	3	4	12	High	All Temporary Traffic Management Plans are approved by Council staff. These plans are monitored by Council staff and by independent audit	2	4	8	Medium	Review the frequency of audit according to COPTTMS	Roothing Compliance Engineer

Operational	Incorrect prioritisation of works, leading to increase life cycle cost and not meeting LOS	2	3	6	Medium	Deficiency database used to record and prioritise deficiencies, There are clearly defined levels of service, RAMM Contractor is used for programming and for approval of programme, Maintenance contract requires the contractor to have in place an approved Contractors Plan, Service request system used to identify defects, Feed back from community boards and utilities companies used to monitor defects, RAMM treatment selection including field verification used to develop programmes	1	3	3	Low	Improving the Asset condition knowledge such as carrying out FWD, HSD in order to implement dTIMS	Asset Planning Engineer
Operational	Changes in contractor/consultant focus e.g. resulting from mergers of companies.	2	2	4	Low	This risk is relevant to long term Maintenance Contracts only. The contract conditions and specifications define the contract requirements and they cannot be changed without Council approval.	2	2	4	Low	If mergers happen the a Workshop with contractor/ consultant to reinforce council's requirements and expectations would be held	Roading Manager
Operational	Misalignment of work programme with other utilities.	3	2	6	Medium	Regular meetings with utility organisations held to coordinate programmes, CAR Manager system in place to manage trenching work	2	2	4	Low	Continue to meet regularly with other utilities and continue to use CAR manager	Roading Compliance Engineer
Operational	Lack / loss of local knowledge to properly prioritise works, unnecessary work done or necessary work not done	3	2	6	Medium	Succession planning and good procurement process	2	2	4	Low	Ensure knowledge is transferred across staff	Roading Manager
Operational	Programme too ambitious, failure to meet expectations	3	2	6	Medium	There is process in place to prioritise work such as: Using RAMM contractor, Capital Programme Control Group (CPCG), 3 yearly programme approval process , maintenance contract annual and 3 monthly programme approval process	2	2	4	Low	Ensure staff are suitably qualified and trained in programme management. Document process for capital works programme management.	Roading Manager Roading Engineer Asset Planning Engineer
Operational	Inappropriate quantity (too much or too little) of work carried out, leading to increase cost or inefficient use of funding and LOS not being met	2	2	4	Low	There is process in place to prioritise work such as: Using RAMM contractor, Capital Programme Control Group (CPCG), 3 years programme , maintenance contract annual and 3 monthly programme life cycle a analysis in place for each asset type	2	2	4	Low	Ensure that the life cycle analysis are reviewed and updated after field validation	Roading Manager Roading Engineer Asset Planning Engineer
Operational	Third party work on the road (e.g. utilities operators) not meeting the required standards, leading to future council cost and LOS not being met	3	2	6	Medium	Roading Compliance Engineer position in place with third party work management as a core responsibility, CAR Manager used to manage trenching work, There is an approval and audit process in place for all third party work, Contractor carries out regular and routine inspections, Service request system identifies and records issues.	2	2	4	Low	Ensuring that suitably qualified and trained staff manage this process	Roading Manager Roading Compliance Engineer
Procurement	Poor performance of contractor/consultant, leading to increase cost and LOS not being met	3	3	9	Medium	Using industry best practices specification, Contactor required to have a quality plan, Maintenance contract has performance management system in place	2	2	4	Low	Ensure contract performance system in place for construction contracts	Roading Manager and Programme Delivery Team
Project management	Adverse community reaction impacting on ability to deliver programme.	3	2	6	Medium	Good consultation and communication process in place	2	2	4	Low	Consistently review methods and modify as required	Roading Manager and Programme Delivery Manager
Management Risks												
Financial	Changes/fluctuations in resource/materials costs, impacting on council's ability to meet agreed LOS	2	2	4	Low	Procurement Strategy in place to ensure good procurement practices used so as to minimise cost fluctuations. Contract conditions properly manage risk	3	3	9	Medium	Work with contractors to look for more innovative ways of carrying out the works. Reprioritise capital projects to meet needs	Roading Manager Roading Engineer

Financial	Projects required to meet LOS don't attract NZTA subsidy.	2	2	4	Low	Ensure level of service is aligned to NZTA funding requirements and align council LOS with GPS Transport funding direction	2	2	4	Low	Continually assess and understand NZTA directions and incorporate into council strategies and plans	Roading Manager Asset Planning Engineer
Financial	NZTA change rules for subsidy eligibility.	3	3	9	Medium	Provide feedback on NZTA proposed changes	2	2	4	Low	Continually assess and understand NZTA directions and attempt to anticipate and plan for all changes	Roading Manager Asset Planning Engineer
Financial	Significant decrease in NZTA subsidy or funding, resulting in failing to meet Levels of service	2	4	8	Medium	Monitor NZTA funding procedures and submit application in a timely manner with good robust information	2	4	8	Medium	Continually updating AMP to ensure it's robust and has reliable information. Ensuring the council's LOS are realistic and aligned to NZTA funding requirements	Roading Manager Asset Planning Engineer
Financial	Council under funding Rooding budget, resulting in network not being managed in a sustainable manner and failing to meet levels of service	2	4	8	Medium	Good robust AMP to justify funding needs, Consistently reviewing and modifying LOS to ensure they meet community expectation	1	3	3	Low	Contiually updating AMP to ensure it's robust and has reliable information. Ensuring asset planning function is adequately resourced	Roading Manager Asset Planning Engineer
Financial	Lack of competition in contractor base leading to increased cost	2	3	6	Medium	Procurement strategy in place and being recognised as a client of choice by the construction industry. District is close to large competitive market in Christchurch	1	2	2	Low	Regular updating of Procurement Strategy, ensuring qualified experienced staff with the values aligning to council culture in key positions	Roading Manager
Resources	Lack of resources (people, materials, equipment or plant) to satisfy works requirement.	2	3	6	Medium	Being a good employer and an employer of choice. Provide staff training and development	1	3	3	Low	Continue to provide good work place conditions and staff developments	Roading Manager
Systems/ information	Catastrophic failure of IT infrastructure leading to loss of asset management data.	1	4	4	Medium	Ensuring RAMM LTD have a backup for the database, corporate business continuity plan in place	1	4	4	Low	Regularly review and update business continuity plan	Asset Planning Engineer
Planning Risks												
Asset management planning	Poor traceability and justification of decision making, leading to inadequate management of risk.	2	2	4	Low	Good delegation, suitably trained and qualified staff, good documented process in place, appropriate management structure that clarifies responsibilities		2	2	Low	Regular review of structure, delegation and processes	Roading Manager
Asset management planning	Lack of wider knowledge of the risk log and the risk management plan.	3	2	6	Medium	All staff involved in developing risk log and risk management plan	3	2	6	Medium	Communicate the plan to all involved in managing Rooding network. Delegate specific tasks and responsibility to individual staff	Asset planning Engineer
Service Level	Availability / capacity limitations of network assets, leading to levels of service not being met	3	3	9	Medium	Monitor the performance of network through inspections, surveys, traffic count, crash data, service requests. Adjust maintenance frequency and programme work to respond to change in demand	2	2	4	Low	Continue to monitor the network performance and adjust frequency or programme work	Roading Manager, Asset Planning Engineer
Natural event and environmental	Non compliance with resource consent condition leading to impact in environment and penalties	2	3	6	Medium	Council regularly monitors consent conditions	2	2	4	Low	Review current monitoring process to ensure all consents are being monitored and reported	Roading Engineer
Natural event and environmental	Damage or closure of the roading and transport infrastructure due to natural events e.g. Flood, earthquake, storm, snow.	3	3	9	Medium	Snow clearance priority list in place contractors plan in place contract has conditions for managing emergencies Ashley bridge closure process in place. Council emergency management procedures Life lines Disaster resilience assessment and seismic bridge assesment programme in place	3	2	6	Medium	Review of and document procedure for closures of critical routes.	Roading Manager, Asset Planning Engineer

Service Level	Misalignment between levels of service and public expectation.	3	2	6	Medium	Monitor service requests, Monitor annual plan submissions, Analyse 3 yearly customer satisfaction survey. Communicating background and reasons for LOS	2	2	4	Low	Continue to monitor service requests, annual plan submission and customer satisfaction surveys	Roading Manager, Asset Planning Engineer
Service Level	Misalignment between levels of services and contractual arrangements	2	2	4	Low	Review of road network maintenance contract in 2010 fully aligned with council LOS	2	2	4	Low	Ensure that Level of services and contractual arrangements are aligned by regular review and updating contract documents	Roading Manager, Roding Engineer
Strategic Planning	Inadvertent non-compliance with legislation due to lack of knowledge.	2	2	4	Low	Appropriately trained and qualified staff in key positions	2	2	4	Low	On going staff training and development	Roading Manager
Strategic Planning	Absence of corporate risk policy leading to loss of accountability and/or inconsistent approach to risk management.	2	2	4	Low	Cooperate risk strategy exist and risk managed at a corporate level	2	2	4	Low		
Strategic Planning	Change in legal (e.g. RMA, OSH, LGA) requirements results in more onerous operating or working conditions.	3	2	6	Medium	Any change in legal requirements is monitored and opportunities for submission during consultation undertaken. Change are addressed as they arise	2	2	4	Low	Continue to monitor through HR manger, planning staff, policy and strategy team on expected changes and likely consequence in order to proactively response to likely changes	Roading Manager
Strategic Planning	Local public pressure leads to poor outcomes	1	3	3	Low	Good communication and consultation and robust decision making process	1	2	2	Low	Monitor and review current practices.	Roading Manager
Strategic Planning	Misalignment with neighbouring council plans.	2	2	4	Low	Regular communication with neighbouring authority staff, consultation if they impact on neighbours. UDS is in place for greater Christchurch area	1	1	1	Low	Monitor and review current practices.	Roading Manager
Strategic Planning	Inconsistent application of development and financial contributions policy.	2	2	4	Low	Clear and consistent policy in place, trained and qualified staff administering the applications	1	1	1	Low	Monitor and review current practices.	Roading Manager
Strategic Planning	Policy concerning development and other financial contributions ineffective leading to insufficient funding.	2	2	4	Low	Clear and consistent development contribution policy, all growth related projects are included in the financial model for development contributions. Cost estimates for financial contribution are robust using the up to date cost estimates	1	2	2	Low	Monitor and review current practices.	Roading Manager, Asset Planning Engineer

Physical Asset Management Risk Register

Asset Type	Risk Description		Gross Risk			Current Mitigation Strategy		Net Risk			Management Option	Responsibility
		Likelihood	Consequence	Factor	Risk Assessment	Description	Likelihood	Consequence	Factor	Risk Assessment		
Physical Asset Risks												
Risks common to all assets	Information relating to management of the asset difficult to obtain when needed - impact on decision making.	2	2	4	Low	Pocket RAMM being used which gives live remote access to the RAMM database. Road maintenance and street lighting contractor have Pocket RAMM	1	2	2	Low	More staff are trained and have access to pocket RAMM	Asset Planning Engineer
Risks common to all assets	Poor assessment of remaining life or inaccurate asset information impacting on asset valuation, depreciation calculations and leading to incorrect level of budget	3	2	6	Medium	Useful lives regularly reviewed by analysing actual useful lives and failure modes. network knowledgeable staff	2	2	4	Low	Implement condition rating process for all assets to get better actual useful life data for all assets.	Asset Planning Engineer
Risks common to all assets	Vehicles losing control and hitting road side hazards causing serious injury or death	4	4	16	High	Routine network inspections and annual night and day safety inspection by independent road safety engineer identify potential hazards. Serious injury and fatal crashes are investigated to identify possible road faults. A programme of road side hazard removal is in place for the rural strategic road network.	3	4	12	High	Continue regular network safety inspections by experience staff and annual night and day inspection by independent experienced road safety engineer. Continue programme of roadside hazard removal	Roading Manager
Risks common to all assets	Vested Assets not meeting council standards	3	3	9	Medium	There is a documented process in place to hand over vested assets to Council Asset owners.	2	3	6	Medium	Ensure formal process is followed and all testing is carried out and results reported before hand over.	Asset Planning Engineer
Risks common to all assets	Under-spending on renewals leading to reduced asset useful lives	2	3	6	Medium	Good robust asset information system and AMP, adequate levels of funding are available in budget, monthly reporting from contractor giving expenditure to date and projected expenditure ensures programmes are delivered,	2	2	4	Low	w Keep AMP up to date w Consider best practice techniques and cost effective technology	Roading Engineer
Risks common to all assets	Roadside vegetation on private property (e.g. shading trees, falling trees) resulting in crashes	3	4	12	High	Using local newspapers to advise property owners of responsibilities and risks, letters sent to specific property owners requesting they trim trees and hedges and follow up inspections, information pamphlets available at Council service centres and on Council Website	2	4	8	Medium	Engage arborist to inspect at risk trees and report on remedial action.	Road Maintenance Engineer Roading Compliance Engineer Road Maintenance Contractor (Sicon)
Carriageway	Poor design of carriageway geometryand/or poor drainage leading to pavement deterioration and risk of crashes	3	3	9	Medium	Regular network inspections carried out to identify deficiencies, analysing crashes for possible road effects, regular grading/ maintenance programme in place	2	2	4	Low	Programme for High Speed Data collection being put in place that will collect road geometry data.	Asset Planning Engineer
Carriageway	Unplanned road closure due to crashes, spillages	3	2	6	Medium	Road maintenance contractor is required to respond to emergencies on the network	3	2	6	Medium	Continue to implement current process	Road Maintenance Engineer Roading Compliance Engineer Road Maintenance Contractor (Sicon)

Carriageway	Roadside is used for stockfood storage thus presenting possible safety risk and damage to road surface	3	2	6	Medium	Identified through Contractor Inspection and reported to roading team. Complaints followed up with property owners who will be requested to stop the practice.	2	1	2	Low	More formal process required to inform property owners of responsibilities and the use of the roadside	Road Maintenance Engineer Roading Compliance Engineer Road Maintenance Contractor (Sicon)
Carriageway	Stock crossing the road damaging the pavement	3	1	3	Low	Stock crossing bylaw is in place which require road to be kept clean and any damage repaired at property owners expense. Road Compliance Engineers is responsible for monitoring and enforcing stock crossing permit conditions	2	1	2	Low	More proactive in monitoring and inspections	Roading Compliance Engineer
Pavement	Crashes caused by poor skid resistance, surface condition, loose chip or metal	3	4	12	High	Regular network inspection, Bi annual pavement condition rating, contract level of service for detritus and loose metal well defined, analysing crashes records for trends in crash causes	2	4	8	Medium	Developing and implementing pavement skid resistance strategy	Asset Planning Engineer
Pavement	Crashes caused by dust on unsealed road	1	2	2	Low	Unsealed roads are maintained to a good condition, with suitable shoulders for passing	1	2	2	Low	Continue reviewing methods of managing dust on unsealed roads	Road Maintenance Engineer Road Maintenance Contractor (Sicon)
Pavement	Pavements have insufficient strength to carry traffic loading, resulting in reduced pavement useful life	4	3	12	High	Network inspections, condition rating, early warnings system are in place to identify these issues. Adequate budget to carry out works is available	3	2	6	Medium	Carrying out more pavement strength data e.g. FWD, and implementing dTMIS	Asset Planning Engineer
Pavement	Poor reinstatement after utility installation resulting in deteriorating network pavement condition and reduced pavement useful life	3	2	6	Medium	New national code in place with the use of RAMM CAR Manager and Before U Dig to manage trenching work. Road Compliance Engineer position has managing CARs as a specific responsibility	2	2	4	Low	Monitor and review current practices.	Roading Compliance Engineer
Pavement	Rapid deterioration in pavement due to prolonged wet weather or storm events	4	3	12	High	Ensuring the road meets best practise standards in term of shape and drainage. Keeping ahead of regular inspection	3	2	6	Medium	Monitor and review current practices.	Road Maintenance Engineer Roading Engineer Road Maintenance Contractor (Sicon)
Parking	Inadequate maintenance of car parks leading to personal injury	2	2	4	Low	Regular inspection Customer feedback	1	1	1	Low	Monitor and review current practices.	Road Maintenance Engineer Roading Engineer Road Maintenance Contractor (Sicon)
Bridges and roads Structures	Bridge damage caused by overdimension vehicles.	3	2	6	Medium	Overweight and dimemson permit system in place,police enforcement, public feedback	2	2	4	Low	Review the overweight permit system based on the current bridge condition rating, making sure that permit system is not too onerous	Asset Planning Engineer
Bridges and roads Structures	Damage or collapse of structures in adverse event	2	4	8	Medium	Annual bridge inspection, regular maintenance programme, lifelines Disaster Resilience Assessment, and bridge seismic assessment	2	4	8	Medium	Continue improving staff knowledge of bridge structures	Road Maintenance Engineer Roading Engineer Road Maintenance Contractor (Sicon)
Road Drainage	Under sized culverts resulting in surface flooding and possible crashes	3	2	6	Medium	Robust maintenance and renewal programme, regular detailed inspections during and following flood events	3	2	6	Medium	Monitor and review current practices.	Road Maintenance Engineer Roading Engineer Road Maintenance Contractor (Sicon)

Bridges and roads Structures	Vandalism to footbridges leading to personal injury	2	2	4	Low	customer feedback through Service Request, regular inspections	2	2	4	Low	Investigate the use of vandal proof material where possible	Road Maintenance Engineer Roding Engineer Road Maintenance Contractor (Sicon)
Bridges and roads Structures	Crashes due to narrow bridges	2	2	4	Low	monitoring and identifying narrow bridges, advance warning signs, sight lines, sight distance, Convert to one way if required	2	2	4	Low	maintaining signage, sight lines	Road Maintenance Engineer Roding Engineer Road Maintenance Contractor (Sicon)
Footpath & cycleway	Inadequate Footpath & cycleway quality – caused by poor design, construction materials, utilities reinstatement etc. resulting in inaccessibility and pedestrians tripping and injury.	2	2	4	Low	Regular inspections, customer feedback through Service Requests, management of utilities, annual replacement programme, condition rating	2	2	4	Low	Monitor and review current practices.	Road Maintenance Engineer Roding Engineer Road Maintenance Contractor (Sicon)
Footpath	Inadequate accessibility for wheelchairs, walkers, prams, mobility scooters, visual impaired	3	2	6	Medium	Upgrade footpaths to meet current standards as part of footpath renewal programme, include improvements in minor improvement programme. Monitor feedback from the community, Council has adopted a disability strategy	2	2	4	Low	Proactively identifying any issue through inspections. Emphasis the importance of this issue.	Road Maintenance Engineer Roding Engineer Road Maintenance Contractor (Sicon)
Footpath	Heavy vehicles damaging footpath	2	2	4	Low	Customer feedback (Service Request), vehicle crossing policy in place, regular inspection programme	2	1	2	Low	Monitor and review current practices.	Roding Compliance Engineer
Footpath	lack of footpath resulting in people walking on the roads	2	1	2	Low	Minor improvement programme priorities the footpath where safety is an issue	2	1	2	Low	Monitor and review current practices.	Asset Planning Engineer
Surface Water Channel	Flooding affecting roads due to under capacity drainage, poorly located, or blocked drainage assets	3	2	6	Medium	Regular inspection, Customer feedback (Service Request), maintenance programme	3	2	6	Medium	Monitor and review current practices.	Road Maintenance Engineer Roding Engineer Road Maintenance Contractor (Sicon)
Signs	Damage to signs as a result of vandalism, collision, and theft resulting in crashes and increased cost	4	3	12	High	Customer feedback (Service Request) police reports, regular inspections, regular awareness campaigns through the media, using vandal proofing techniques without making it dangerous	4	2	8	Medium	Monitor and review current practices.	Road Maintenance Engineer Roding Engineer Road Maintenance Contractor (Sicon)
Signs	Inappropriate management of signage with potential to result in accidents e.g. lack of warning of sudden changes in speed environment or topography, deterioration of signs	2	3	6	Medium	Experienced road management staff and contractor manage the network, regular inspections, Customer feedback (Service Request) Robust renewal programme adequate maintenance and renewal funding available	2	2	4	Low	Succession planning, retain good knowledge of signs network	Road Maintenance Engineer Roding Engineer Road Maintenance Contractor (Sicon)
Road marking	Lack of delineation after winter e.g ice gritting removing road markings	3	2	6	Medium	Maintenance contractor inspections and treatment as required	2	1	2	Low	Monitor and review current practices.	Road Maintenance Engineer Roding Engineer Road Maintenance Contractor (Sicon)

Edge marker post	Lack of Edge marker post due to damage, wear and tear	3	2	6	Medium	Identified through Contract regular inspection programme	2	2	4	Low	Monitor and review current practices.	Road Maintenance Engineer Roading Engineer Road Maintenance Contractor (Sicon)
Bus Shelters	Bus Shelter vandalism leading poor image and increased costs	2	1	2	Low	Using a vandal proof materials regular inspections	2	1	2	Low	Monitor and review current practices.	Road Maintenance Engineer Roading Engineer Road Maintenance Contractor (Sicon)
Passenger Transport	Lack of or poor passenger transport infrastructure resulting in reduced patronage	2	2	4	Low	Regular Communication with ECAN to assess needs, regular inspections of existing infrastructure	1	1	1	Low	Monitor and review current practices.	Road Maintenance Engineer Roading Engineer Road Maintenance Contractor (Sicon)
Streetlight	Poorly lit roads resulting in accidents to motorist / pedestrians caused by bulb failure, vandalism, collision from vehicles, power cuts, lack of lights.	2	2	4	Low	Regular inspection to identify issues, Replacment programme in place	2	2	4	Low		Road Maintenance Engineer Roading Engineer Road Maintenance Contractor (Sicon)
Streetlight	Power cost increases	4	2	8	Medium	Using more efficient lights option in place	4	2	8	Medium	Monitor the performance of LED lights	Road Maintenance Engineer Roading Engineer Road Maintenance Contractor (Sicon)
Streetlight	LED street lights do not perform as expected	2	2	4	Low	Monitor the performance of LED lights	2	1	2	Low		Road Maintenance Engineer Roading Engineer Road Maintenance Contractor (Sicon)