



**Asiant Cefnffyrdd Gogledd a Chanolbarth Cymru  
North & Mid Wales Trunk Road Agent**

***National Assembly for Wales' Economy,  
Infrastructure and Skills Committee Inquiry into  
the State of Roads in Wales***

***North & Mid Wales Trunk Road Agent***

***Written Response***

**24<sup>th</sup> April 2018**



Yn gweithio ar ran  
**Llywodraeth Cymru**  
Working on behalf of the  
**Welsh Government**

## **1. Introduction**

- 1.1 Welsh Government (WG) appointed Gwynedd Council (GC) as the North and Mid Wales Trunk Road Agent (NMWTRA) in April 2012. NMWTRA are responsible for delivering the requirements of the Highways Act including the statutory 'duty to maintain' under delegated authority from WG. The relevant standard applicable to NMWTRA's role is the Welsh Government's Trunk Road Maintenance Manual (WGTRMM).
- 1.2 In relation to the scope of the Committee inquiry, NMWTRA has limited its comments to the trunk road network in North and Mid Wales.
- 1.3 Trunk road management arrangements in Wales were subject to a major Ministerial review during 2014/15 leading to a subsequent challenge to the two Trunk Road Agents to realise significant combined annual cost savings in the order of £14m. As part of the review process WG decided to internalise the planning function. From April 2015, WG have been wholly responsible for identifying and prioritising capital investment requirements for Trunk Roads.
- 1.4 As part of the review, NMWTRA modified its delivery model to internalise all core functions and introduced a major revision to its procurement arrangements with its public sector Partner Authority (PA) service providers. During 2016, WG accepted a further NMWTRA submitted business case to move the Welsh Transport Technology Consultancy function and the Traffic Wales information service into the Trunk Road Agents.
- 1.5 The role of the NMWTRA now includes the following functions:
- Inspection of highway assets to capture and update inventory, determine asset condition and identify safety hazards;
  - Technical administration functions including: Streetworks coordination, Third Party Claims and Development Control advice;
  - Following WG instruction, determine feasibility and undertake detailed design and implement major maintenance renewal, upgrade and minor improvement schemes;
  - Undertake routine and reactive maintenance on the Trunk Road network including winter maintenance, correcting safety defects and responding to emergency incidents within defined timescales;
  - Providing support to the Emergency Services;
  - Provision of advice to WG on operational matters, requests for service from the public and elected members;
  - Operate the WG Traffic Officer Service and network Control Room functions;
  - Departmental Representative for the A55 Design Build Finance Operate Contract.
  - To manage a combined capital and revenue budget allocation from WG of approximately £55m to £60m.
  - Operate, maintain and improve WG Technology Assets including variable message signs and tunnel mechanical and electrical installations.

- On behalf of WG, manage the Traffic Wales Communication service on an all Wales basis.

## **2. Background**

- 2.1 Trunk Road management arrangements in Wales are subject to high levels of governance and scrutiny by WG to ensure value for money is being achieved and Agents maintain a high level of continuous improvement. Wales Audit Office undertake a financial audit on NMWTRA accounts on an annual basis.
- 2.2 Between 2007 and 2013 a number of successful external audits commissioned by WG have been undertaken by Halcrow 2007, EC Harris 2008, Performance Audit Group(PAG) 2011 and 2012 and EC Harris in 2013. The EC Harris Audit in 2008 included a benchmarking exercise across Wales and with similar services provided by the private sector in Scotland. The successful 2010 Agency review confirmed that the public sector model operating in Wales in the context of the Welsh economy was providing Value for Money and the Agency arrangements were renewed in 2012. The WG letter of appointment commented as follows: *“This is a very positive result for the unique public sector delivery model that we have in Wales, which will now continue after its cost effectiveness was established in comparison with alternative private models as part of the review”*
- 2.3 NMWTRA have continued with a comprehensive programme of continuous improvements since 2012 and this has included further enhancement to governance measures for the operation of the Agent’s supply chains. NMWTRA and its supply chain also operates within an accredited Quality Management System (QMS).

## **3. The current condition of Trunk Roads in Wales**

- 3.1 The Trunk Road network within North and Mid-Wales is highly variable in terms of the level of engineered or designed sections of road. Approximately 80% of the network has evolved over the last 150 years and does not meet current design standards in terms of design speed, vertical and horizontal alignment, carriageway construction, drainage and other associated highway infrastructure. The network comprises significant lengths of dual carriageway notably on the A55, A494 and A483. There are a number of high-level mountain passes with a predominantly rural single carriageway network. The network also passes through a significant number of towns and villages. The overall makeup of the network presents a number of challenges from an operational and maintenance aspect.
- 3.2 With regards to assessing the condition of Trunk Roads, NMWTRA implements a comprehensive inspection programme in accordance with WGTRMM for all highway assets including:
- Highway pavement/carriageway;
  - Traffic signs and lining;
  - Drainage systems;
  - Geotechnical assets including embankments, cuttings, rock catch fencing and rock netting;
  - Highways structures including bridges, tunnels and retaining walls;

- Technology, Mechanical, and Electrical (M&E) assets including Variable Message Signs (VMS), pumps, fans and street lighting;
- Environmental / soft estate;
- Vehicle Restraint Systems (VRS).

3.3 The inspection programme has two discrete purposes, which are; firstly, to identify Category 1 defects that represent an immediate hazard to the travelling public and enable early rectification in accordance with WGTRMM defined timescales. NMWTRA directly manage Category 1 defect repairs through its supply chain.

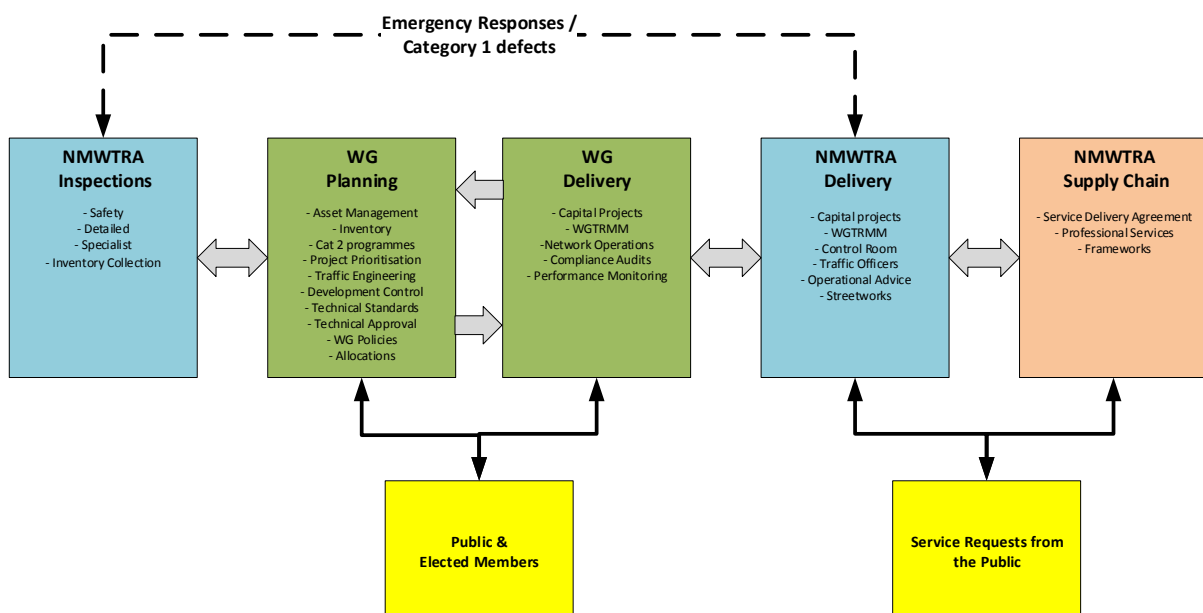
3.4 Category 1 and 2 defects identified by NMWTRA and Category 1 annual expenditure for a network length of 1,100 Km over the last 3 years is tabulated below.

Defects	2017/18	2016/17	2015/16
Category 1	6,192	5,997	6,640
Category 2	13,608	14,592	9,754

	2017/18	2016/17	2015/16
Category 1 Expenditure	£5.0m	£5.4m	£5.2m

3.5 The second purpose of the inspection programme is to identify asset condition related Category 2 defects. Condition data is provided to WG in order that within the planning functions WG undertake, available budgets can be prioritised across Wales to address asset condition related defects in the most efficient manner. The Category 2 data provided by NMWTRA is also supplemented by further condition surveys procured by WG to identify carriageway surfacing skidding resistance (SCRIM surveys), carriageway structural condition and residual life (Deflectograph surveys). WG then provide prioritised programmes of maintenance works to NMWTRA for delivery through the Agent’s supply chain. The interaction and respective roles are illustrated in Figure 1 below.

Figure 1: WG/NMWTRA Management Model



#### 4. Value for Money and NMWTRA Delivery Mechanism

- 4.1 The 2014/15 Ministerial review and subsequent changes to the NMWTRA operating model have assisted in achieving significant cost savings and improved value for money in Trunk Road operation and maintenance. It is of significant note that the public sector delivery model enables VAT recovery on all Trunk Road expenditure typically in the order of £20m per annum across Wales.
- 4.2 The cost saving business cases submitted by NMWTRA to WG in April 2015 have now been fully implemented. An interim audit undertaken by Arcadis (previously EC Harris) on behalf of WG in November 2017, has confirmed that the NMWTRA cost savings component of the overall £14m savings forecast for 2016/17 has been realised.
- 4.3 The NMWTRA network has a large geographical area extending over approximately two thirds of Wales. In order to achieve effective, efficient delivery of routine and reactive maintenance functions including winter maintenance, NMWTRA's delivery model is based on a strong synergy with the operation and maintenance of the local county road network. This enables labour resources to be sourced locally improving response times particularly outside normal operating hours.
- 4.4 NMWTRA's overall procurement strategy ensures that opportunity for local, Welsh based Small and Medium Enterprise (SME) suppliers is maximised. NMWTRA is continuously improving levels of transparency and benchmarking, combined with competition, to ensure that services are provided at market rates and continues to provide value for money.
- 4.5 The NMWTRA integrated model enables the benefits of economies of scale and cost sharing opportunities to be maximised and shared between PA's and WG. Transparency through an open book accounting methodology and audit processes ensures fixed costs are apportioned on an appropriate basis. The model enables WG to make use of a significant number of highway depots (40 No.) and major plant items distributed across North and Mid-Wales, enabling optimal operations to be achieved particularly for winter maintenance and emergency response. This is an exemplar model of regional collaboration between Local Authorities and with Central Government.
- 4.6 Mutual aid arrangements across multiple PA's can deal with exceptional events resulting from severe adverse weather or major road traffic collisions (RTC). WG benefit from significant resources and associated resilience on a shared cost basis.
- 4.7 Routine and reactive maintenance functions are procured through Partner Local Authorities utilising a combination of in-house resources and PA sourced SME private sector suppliers. Approximately 50 to 60% of this work is procured from private sector suppliers through competitive processes ensuring high levels of value for money.
- 4.8 The above model ensures that the labour resources associated with an integrated winter maintenance service can be retained outside the winter period on a cost effective basis by deploying those resources, supplemented by SME private sector resources on non-winter maintenance related maintenance functions. The overall efficiencies of this model are shared between WG and PA's.

- 4.9 NMWTRA operates in partnership with WG adopting common public sector values and a collaborative culture, which avoids the costly non-productive aspects found in many more contractual arrangements.
- 4.10 For capital delivery projects instructed by WG, NMWTRA provides delivery through a combination of its public sector consultancies and its private sector supply chain comprising the following framework contracts:
- NMWTRA Contractor Framework for multi-disciplinary construction work
  - NMWTRA Surfacing Framework
  - NMWTRA Consultancy Services Framework
- 4.11 All NMWTRA Framework Contracts are procured competitively, on a quality / cost basis with subsequent works packages being awarded through a mini competition process. This ensures that all capital delivery works are procured at market rates and demonstrates ongoing value for money. The establishment of frameworks enables long-term working relationships with suppliers to be developed and this assists with smooth delivery and rapid response to programme requirements.

## 5. Minimising Disruption

- 5.1 NMWTRA fully recognises that every effort to minimise disruption to traffic during roadworks must be made due to the potential impact on journey times and wider economic factors, particularly during high seasonal traffic flows. NMWTRA adopts a range of measures to mitigate against traffic disruption for its routine, reactive and capital delivery programmes including the following:
- A55/A494/A483 Dual Carriageway and Tunnel night-time working and maximising use of road-space;
  - Trunk Road works embargo periods;
  - Contract specification programming and resourcing requirements;
  - Traffic Officer Rolling Road Block interventions;
  - Off peak daytime traffic management;
  - Effective statutory Streetworks coordination.
- 5.1.1 *A55/A494/A483 Dual Carriageway night-time working* - The default position for dual carriageway maintenance and improvement works is that they are undertaken at night and of the typical annual expenditure for this network type of £10m, approximately £9m or 90% (2017/18) of this work is undertaken at night. Not all work can be done at night due to the nature of the work being undertaken and associated traffic management arrangements required or for environmental noise restrictions. When road-space is generated on the dual carriageway, network all-possible work activities are undertaken at the same time to avoid further traffic management requirements. This will include all routine cyclic maintenance operations, inspection functions, Category 1 and 2 repairs and surveys.
- 5.1.2 *Trunk Road Embargo periods* - WG and NMWTRA recognise that the Welsh Trunk Road network is subject to significant seasonal variation due to the level of tourist attractions within Wales. WG operate formal embargo periods that prohibit any

programmed works during all Bank and School Holiday periods. However, during the embargo period there may be the need for reactive maintenance works due to Category 1 defect safety implications or emergency works resulting from Road Traffic Collisions (RTC).

- 5.1.3 *Contract specification programming and resourcing requirements* - For all capital delivery undertaken on the dual carriageway network, NMWTRA ensures that its contract specification applies the necessary measures to mitigate against traffic disruption. This will include for night-time working where practicable. When this is not achievable, then extended working days, 24 hr working and 7 day per week working is specified to ensure programme duration and the period of any traffic disruption is kept as short as possible. This approach requires increased contractor resourcing and extended working hours. WG and NMWTRA accept that this approach attracts a premium in terms of cost but that the traffic congestion that would be experienced if this approach were not taken would be unacceptable.
- 5.1.4 *Traffic Officer Rolling Road Block interventions* - NMWTRA have operated a Traffic Officer Service on the A55/A494 dual carriageway corridor since 2011. The service has been expanded in 2018 to now include patrols on the A55 across Anglesey and the A483/A5 corridor through Wrexham. The service has enabled NMWTRA to undertake rolling roadblocks on the dual carriageway network that facilitates short-term road closure up to around 10 minutes. This has enabled emergency repairs e.g. filling of potholes or removal of debris to be undertaken with minimal traffic management intervention. This has significantly improved levels of network resilience and reduced congestion when compared to traditional static traffic management methods.
- 5.1.5 *Effective Statutory Streetworks Coordination* - The statutory street works requirements places responsibility on NMWTRA to coordinate its roadworks with neighbouring Local Authority Highways Authorities. Since April 2016, NMWTRA took responsibility for this function and is continually improving its delivery through the Welsh Government streetworks system and this includes the use of [www.roadworks.org](http://www.roadworks.org) information.

## 6. Maintenance programme delivery challenges

- 6.1 There are a number of challenges that impact on the delivery of maintenance programmes particularly those associated with capital renewals through resurfacing programmes and replacement of major structural components for example deck joint replacement including:
- Fluctuation in budget allocations with funding opportunities regularly arising in quarter four that can place significant pressure on NMWTRA's supply chain and road space availability;
  - An annual budget cycle that does not permit effective forward planning and programming of more significant maintenance or upgrade schemes;
  - Constrained budgets that lead to assets being operated to failure rather than replaced through planned interventions leading to urgent/emergency scheme implementation;
  - Working within Trunk Road embargo periods creates challenging programming arrangements;

- Incomplete Asset Management Systems to support longer-term whole life cost approach to asset management and associated maintenance programmes;
- Seasonal weather aspects relating to resurfacing during the winter months.

6.2 In order to meet these challenges NMWTRA has established an agile supply chain enabling the above delivery challenges to be mitigated to an extent by being able to scale up or down to meet in year and annual budget priorities. The benefits of a public sector core capability with vested knowledge in the network avoids a “cold start” and delay to project delivery. The extended resources available within NMWTRA’s private sector frameworks enables a rapid response to changing WG requirements to be met in a more cost effective manner.

6.3 NMWTRA has adopted a delivery strategy that enables it to manage the above challenges by focussing on scheme preparation during financial year Quarters 1 and 2 with construction phases programmed for autumn / winter delivery. The profile of capital funding received by NMWTRA is illustrated in Figures 2 & 3 below.

**Figure 2: NMWTRA funding profile 2017/18**

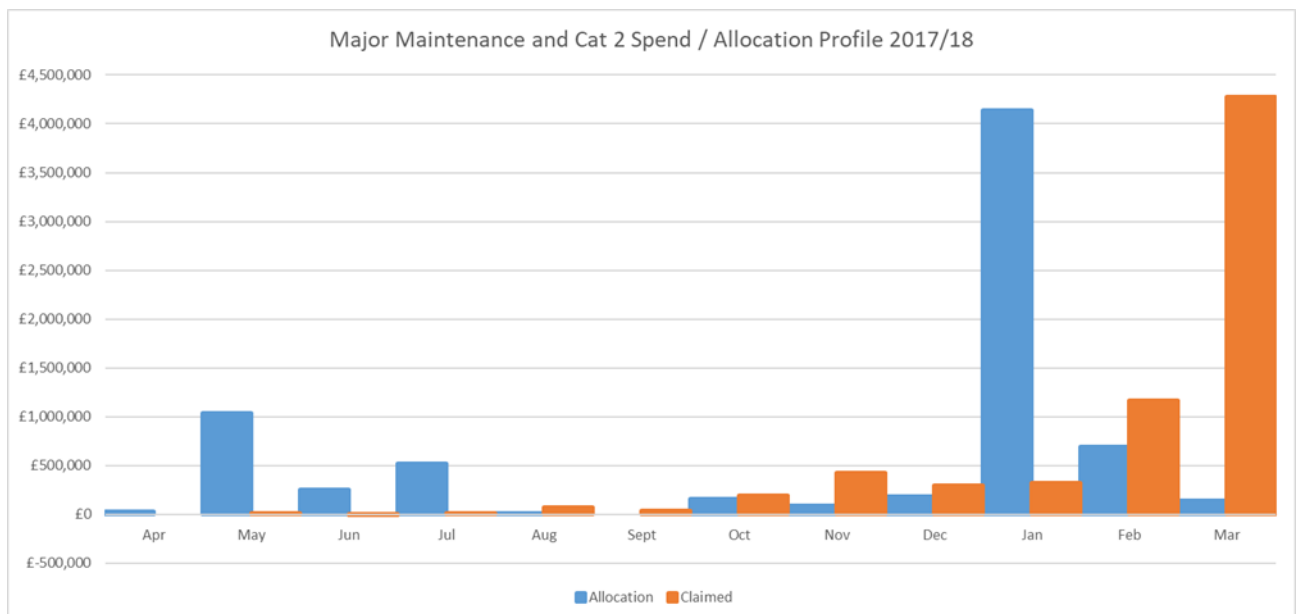
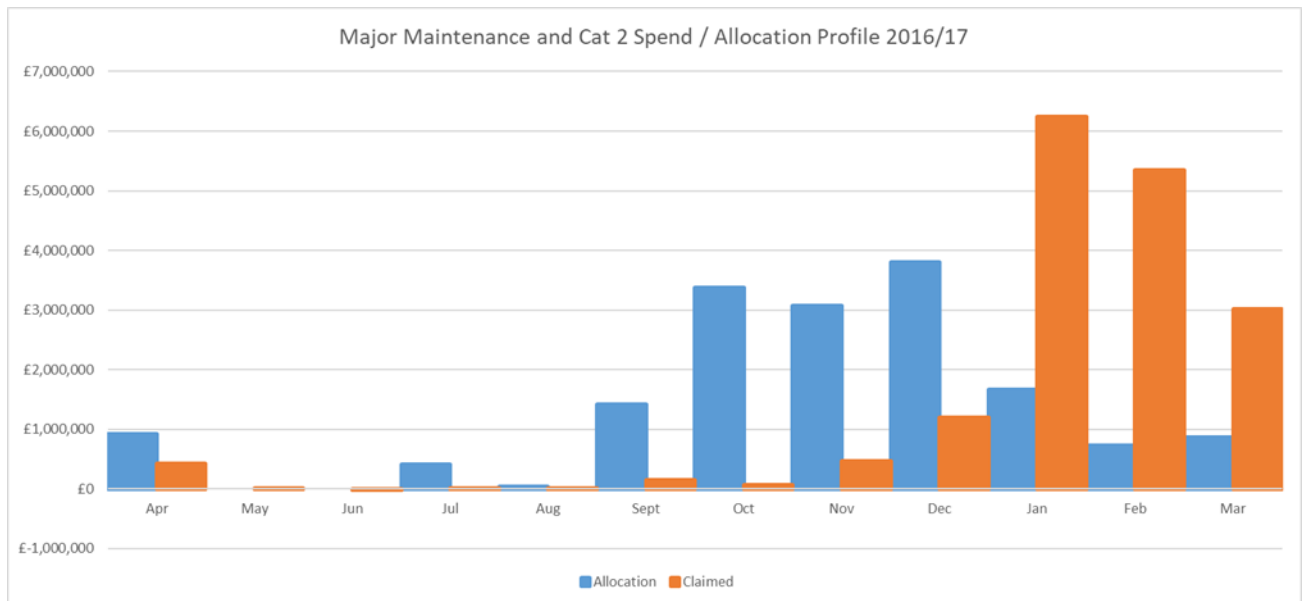




Figure 3: NMWTRA funding profile 2016/17



6.4 It is evident that a significant proportion of funding is not received until Quarters 3 & 4. This imposes significant pressure on both NMWTRA’s supply chain and the available road-space required to undertake a significant works programme.

6.5 The impact that this has on the supply chain inevitably leads to a pricing premium with contractors being overstretched and NMWTRA being required to use its second or third place framework contractors based on cost, to enable the overall capacity to be provided. This leads to inefficiencies from a cost perspective and the pressure on road-space can lead to more significant traffic congestion. Implementing works in adverse climatic conditions can affect the durability and service life of assets in particular surfacing. If a more balanced funding profile were to be provided on a five yearly rolling programme then the following benefits could be achieved:

- Increased scope to combine projects and maximise road space utilisation with associated cost savings and reduced traffic disruption;
- Reduced project risk due to time and weather factors;
- More cost effective whole life design solutions could be implemented;
- More efficient use of supply chain;
- Increased scope for stakeholder engagement and notification;
- Early construction programmes would reduce the traffic congestion associated with an intense Q4 construction period;
- Surfacing materials would be more likely to achieve their expected design life;
- Reduced number and level of maintenance interventions.

6.6 Reducing investment in programmed and preventative maintenance increases the extent of reactive maintenance necessary to maintain operational safety of the network. The balance between programmed and reactive maintenance should be optimised within available funding due to the high costs and disruption associated with a reactive approach. There has been a UK wide move to thin surfacing course systems (TSCS) for environmental reasons. This material has a service life of between 8 and 12 years compared to the historical Hot Rolled Asphalt (HRA) surfacing with a

service life of 25 to 30 years. This means that to maintain consistent surfacing condition the renewal strategy should be to replace surfacing twice as often and therefore approximately double the level of investment. However, instead of increasing investment there has overall been a steady reduction in funding since 2012. There remains scope for improving levels of preventative maintenance treatments and use of high durability surfacing materials to increase the operational life of assets and reduce the number of maintenance interventions.

## **7.0 Major enhancement projects**

7.1 These projects generally fall outside the roles and responsibilities of NMWTRA.

## **8.0 Well-being of Future Generations (Wales) Act & Active Travel (Wales) Act**

8.1 NMWTRA now apply the Welsh Transport Appraisal Guidance (WelTAG) process to all significant upgrade schemes that it manages. This process fully considers the above Acts and as far, as is practicable all suitable measures are included within relevant scheme designs.

## **9.0 Concluding comments**

9.1 A move to a five-year rolling programme of funding linked to a more holistic approach to asset management has significant potential to improve efficiency in the delivery of maintenance and upgrade schemes, improve whole life costs and reduce levels of traffic disruption.

9.2 The current Trunk Road Agent model has proven, through repeated review and audit processes that it is providing good levels of value for money through its public and private sector supply chains operating within robust governance and performance management regimes. The operation of an integrated service model provides significant economies of scale and an ability to optimise service delivery to the benefit of WG and Local Authorities.

9.3 The NMWTRA supply chain creates significant opportunities for Welsh based SME's to undertake Trunk Road works engaged directly by the Agent through frameworks or as part of the extended supply chain provided by Local Authorities. This significantly benefits both the local and national Welsh economies and assists in creating and maintaining quality local employment opportunities.

9.4 NMWTRA would like to thank the Committee for the opportunity to provide this statement and welcomes any questions that the Committee may have in relation to it.

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