

**Flintshire County Council**  
**Ash Dieback Update**  
**April 2020 to March 2021**



Infected Roadside Ash Tree – Ffrwd, Flinshire

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**1.0 Introduction**

**1.1 Purpose**

1.1.1 The purpose of the report is to provide a written account to members and managers of actions taken by Flintshire County Council in response to recommendations promoted by the Flintshire’s Ash Dieback Action Plan 2019.

1.1.2 The main features of the Councils Ash Dieback Action Plan are as follows. The plan is based upon the wider protocol of an Emergency Plan and was the basis of the council’s strategy to be used in response to a major tree pest or disease outbreak.

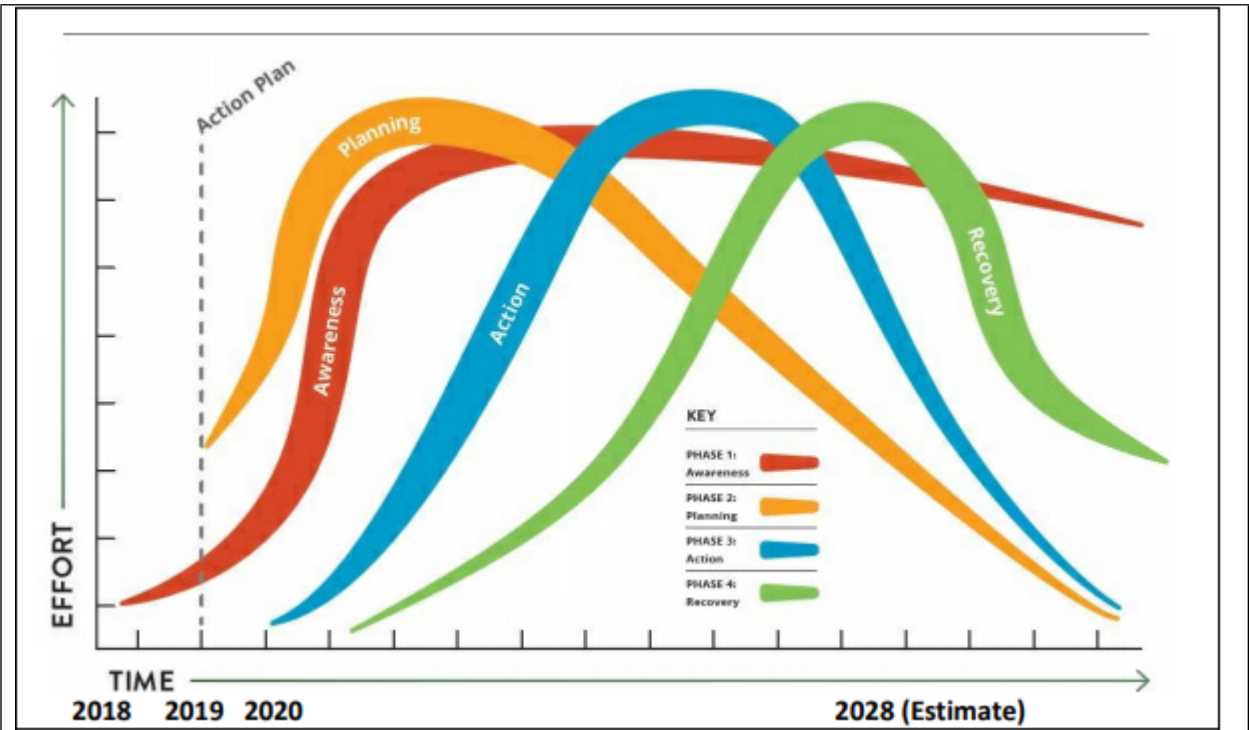


Figure 1 Diagram showing Flintshire’s response to Ash Dieback. Source -The Tree Council Ash Dieback Action Plan Toolkit.

1.1.3 Phase 3 “Action” identifies and suggests ways in which to manage the risk and costs associated to ash dieback. With the main area of concern highlighting the risk areas where infected ash trees have an increased risk to public safety and the financial cost incurred to the council. The areas of risk identified are as follows: trees on adopted highway land, trees growing on educational land, trees growing on public open spaces, housing, cemeteries, industrial estates, countryside parks and public rights of ways.

1.1.4 To moderate and manage the risk associated to ash dieback, a series of surveys have been undertaken to assess the distribution and disease classification of roadside ash trees for priority and secondary roads. These surveys are being used to support the existing tree management system already adopted by Flintshire to manage all species of trees.

## 1.2 Background

1.2.1 Ash dieback was first recorded in Britain in 2012 and is now accepted to be widespread in England and Wales, with substantial distribution in Scotland. Ash Dieback (ADB) is a highly destructive disease of ash trees (*Fraxinus* species), especially our native common ash (*Fraxinus excelsior*) and is caused by the fungal pathogen *Hymenoscyphus fraxinus*.

1.2.2 Depending on environmental and site conditions, ADB effects are most visible in areas where the fungus has been present for the longest period. ADB can cause rapid physiological decline and premature mortality in all ages of ash trees (especially young & regeneration <15 years). Mortality can be as a direct result of ADB infection or via a secondary pathogenic infection (predominantly Honey Fungus *Armillaria* spp). Death is acute in juveniles (<4-5 years) whereas death in veteran ash trees, due to slower biological processes, will be protracted demise.

1.2.3 Ash trees growing in damp humid woodland with high incidents of ash trees are more prone to die due to a higher exposure to the disease and infection. Damp soil also increases the threat posed by tree failure. Basal area lesions and infection by secondary fungal attacks (basal area lesions are known to seriously affect tree suitability through root rot/root loss). Individual trees/free growing trees in open countryside or isolated are less likely to be exposed to the disease, hence the differentiation in disease distribution found in Flintshire.



Figure 2 Diseased Class 3 Ash Tree. Felled in Greenfield Valley Heritage Park on the Main Trail (tree growing near a seat). Note the disease has affected 25% of the strength of the felling hinge.

1.2.4 Among the first symptoms that show that an ash tree might be infected with ADB is blackening and wilting of leaves and shoots, symptoms present late summer July to September. Note these are also the best months for surveying ash trees for ADB infestation and classification.



Figures 3 & 4 Roadside Ash Trees Cadole. Wilting of new growth and Stem Lesions.

1.2.5 Most infected leaves are shed prematurely by the tree, however in some cases infection progresses from the leaves and into the twigs, branches and eventually the trunk, and in most cases death will be inevitable.

1.2.6 When ash limbs or trees die, the disease seriously compromises the structural integrity of the timber. Timber initially becoming brittle and susceptible to cracking under shock-loading. However, as time progresses, water is absorbed and the timber becomes spongy. Current arboriculture industry best practices restrict tree surgeons for climbing severely infected trees and inhibits the use of wedges (percussive forces) and hydraulic jacks (hinges lose their integrity).



Figure 5. Tree Felling at Hendre FCC land. Note One Digger Felling and One Digger loading whole trees into a 24inch Chipper, woodchips fired into articulated lorry.

1.2.7 Under the Occupiers Liability Act 1957 and 1984 landowners have a duty of care which encompasses all trees on their land (Local Authorities have extended powers under the Highways Act to highlight and if necessary enforce landowners to undertake this duty).

### 1.3 Best Practice

1.3.1 When considering the potential threat posed by ash dieback, the risk can be identified and divided into those associated with the Council being a landowner and those resulting from statutory functions.

1.3.2 The decline and death of many ash trees within a short period of time has the potential to have an implication on aspects of public safety, especially when considering the likelihood of limb or tree failure, especially if a reactive management strategy was adopted as opposed to the preferred proactive management strategy.

1.3.3 To address the increased health and safety risk presented by ADB, the Council has implemented a series of surveys and maintenance programmes to monitor and manage

their trees and to monitor and if necessary evoke management of privately owned trees (especially highway verge trees).

1.3.4 Although only a small proportion of roadside trees are owned and managed by the Council, there is a reputational risk attached to the monitoring of those private owned trees if the Council did not use its statutory powers to deal with these infected ash trees, deemed to be dangerous.

1.3.5 Consequently the scale of the health and safety risk associated with ADB will not mean that it will be business as usual for the council.

#### 1.4 Survey Consideration and Approach

1.4.1 Surveying parameters for quantifying the disease currently used by industry is a classifications system, whereby the disease is separated into 4 classes. Class 1 & 2 having a recommendation to monitor and Class 3 & 4 having a recommendation to make safe those infected trees. In addition to the above classification system the National Tree Safety Group best practice recommendation states that trees with 40% crown death, trees with significant basal area lesions be removed/felled/or made safe.



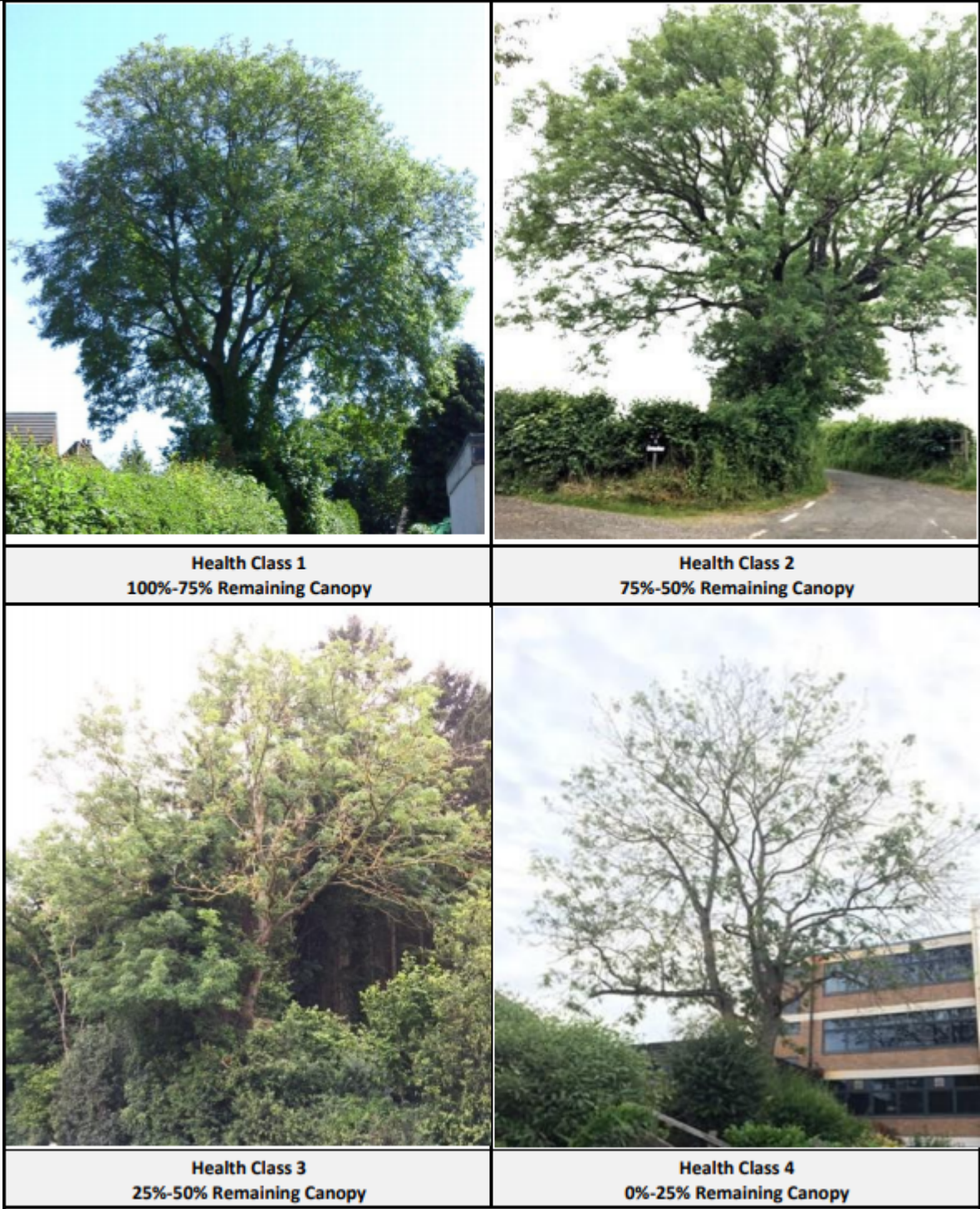


Figure 6. Ash Dieback in Flintshire using the Suffolk County Ash Health Classification System.

1.4.2 It should be emphasized that the above safety factors recommended are only necessary where there is a risk of harm or damage if tree failure occurs. Therefore, trees failing to safety do not require intervention.

1.4.3 All other tree monitoring and management prescriptions are included within Flintshire's Ezytreev GIS programme, which has an intrinsic mathematical function to evaluate risk, hence our risk-based approach to management trees.

1.4.4 Where the Authority identifies trees as being at risk, Officers are directed to act upon such instructions. Alternately where the Authority identifies trees as being a risk to the public and are growing on private land, resources are directed to engage with the owner of the tree to resolve the safety issue. Note that all tree work carried out adjacent to the highways will require traffic managements and inevitably will lead to some traffic disruptions.

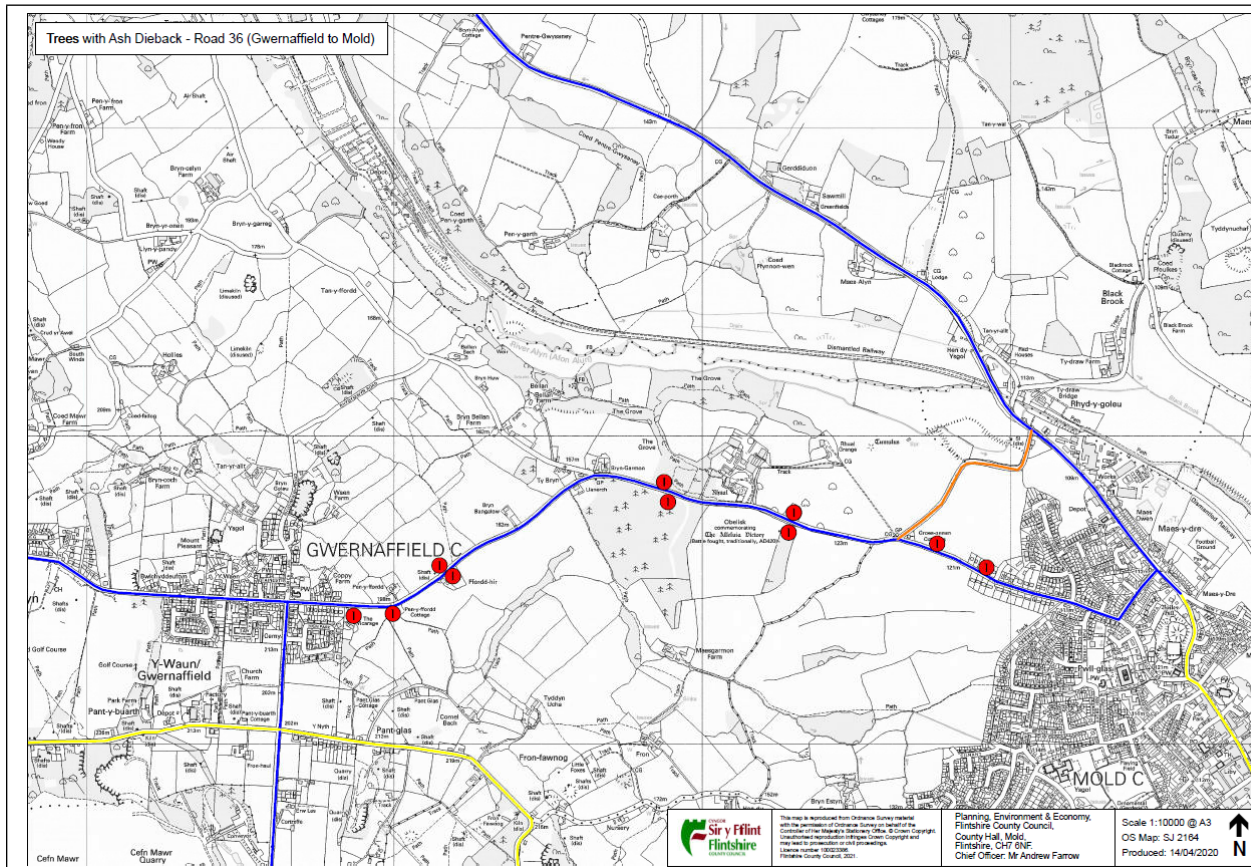


Figure 7. An Example showing Priority (Blue) Secondary (Yellow) Roads and the Position and Disease Classification of the Roadside Ash Trees

1.4.5 Considered secondary to the highway trees, nevertheless, are just as important, are trees growing in schools and formal parks and as a result increased surveying by tree inspectors (Ezytreev) or surveillance by FCC Rangers/Staff (monitor without recording on Ezytreev or ARCGIS) will be necessary.



Figure 8 A line of diseased ash trees adjacent to a Priority road, Note national speed limit sign.

1.4.6 Areas of less concern are FCC owned/managed Business Parks, Countryside Services recreational and wildlife sites, Cemeteries and Housing Land. At this present time Flintshire's Ash Dieback Action Plan considers Public Footpaths, Bridleways and Council Farms to be low priority (unless it borders a highway).

## **2.0 Methodology**

### **2.1.1 Ash Dieback Action Plan**

2.1.2 The adoption of Flintshire's Ash Dieback Action Plan will allow the Council to combat the disease's effect in a coherent and proactive way which will be more efficient and cost effective.

2.1.3 Prior to Phase 3 "Action" the Council has been focused on the delivery of Phase 1 "Awareness" and Phase 2 "Planning" as recommended by the Ash Dieback Action Plan.

2.1.4 Inter departmental meetings have taken place as a means to raise awareness and to recognise the scale of the potential threat of ash dieback to the council's function. External partnerships have been further reinforced, especially with neighbouring Authorities and Mid and North Wales Trunk Roads Agency. Tree industry networks have been utilised as a means of share information, getting to know the character of the disease and promote best practice methods.

2.1.5 Thus the ash dieback working group using the council's platform and resources to emphasise the importance of managing infected ash trees, both internally and externally.

## 2.2 Survey Parameters and Methodology

2.2.1 As indicated by the Ash Dieback Action Plan, Flintshire's highways network as the main area of land which has the largest proportion of ash trees with the highest level of risk, when the ash resource becomes heavily infected.

2.2.2 To simplify the surveying process into manageable sizes, the highways network was subdivided into roads which were deemed to be of a High Priority roads (Blue), Secondary Priority roads (Yellow) and Other roads (left blank). Priority appointment level being speed of traffic, volume of traffic and the general character of the traffic using the particular section of roads (supply chains, commuting, emergency services etc.). Other roads not considered and therefore excluded from the survey were Mid and North Wales Truck Roads Agency road (Green) delegated management responsibility held with the Welsh Government (this was predominantly a desk exercise relying on local knowledge and experience).

2.2.3 In accordance with good survey practice and to develop a reference point for future years, three data sets would be initially required.

1. Identify where ash trees are growing next to the road, Priority and Secondary roads. Digitise findings and place onto the internal mapping network.

2. Utilising a drive-by video recording to capture high-definition images of the trees growing adjacent to Priority and Secondary roads.

3. Quantify the extent of the disease by the ash dieback classification system for a given year (will be part of a series) and portray findings as a digitised heat map.

## 2.3 Survey and Alignment

2.3.1 Satisfy the requirements emphasised within Flintshire's Ash Dieback Action Plan.

2.3.2 The above information to provide the necessary data in which to compose and structure an appropriate tree survey, identifying and recording infected and non-infected ash trees growing adjacent to the highways.

2.3.3 Produce a programme that would stand up to scrutiny in a court of law.

2.3.4 Enable officer to priorities work schedules, initially focusing on Priority roads (Blue) with high levels of infection, disease class 4 and 3, medium to large trees, in high numbers (>50/km accepted nationally as being within the highest tree density bracket).

2.3.5 Develop and test a new survey recording program, utilizing ARCGIS.

### 3.0 Survey

#### 3.1 Progress

3.1.1 Acting in the capacity as a Highways Authority, the Council is responsible for managing 152km of A roads, 78km of B roads, 262 km of C roads and 682km of minor surfaced roads (not including roads maintained by Mid and North Wales Trunk Roads Agency). Note For ease of survey and to compartmentalise the work, Priority and secondary roads were further subdivided into compartments to allow ease of management and referencing i.e. B23 (Blue a priority road referring to Compartment Number 23)

47	B42	Mold	A549	2	SJ249636	SJ305635	5810	JP
48	B43	Mold	B5444	3	SJ246627	SJ257620	1492	JP
49	B44	Mold	A5118	3	SJ253627	SJ303627	5183	JP
50	B45	Buckley	Bannel Lane	2	SJ289635	SJ300628	1721	JP
51	B46	Mold	A541	3	SJ249636	SJ276604	4334	JP
52	B47	Pontblyddyn	A5104	3	SJ276605	SJ296611	2769	JP
53	B48	Penyffordd	A550	3	SJ296611	SJ303627	1902	JP
54	B49	Penyffordd	Corwen/Chester Rd	3	SJ297611	SJ313625	2537	JP
55	B50	Penyffordd	A5104	3	SJ304627	SJ326630	2261	JP
56	B51	Pontblyddyn	A550	3	SJ297611	SJ309572	4912	JP
57	B52	Pontblyddyn	A541	3	SJ276604	SJ312556	5747	JP
58	B53	Pontblyddyn	A5104	3	SJ276604	SJ260580	3257	JP
59	B54	Treuddyn	A5104	3	SJ260580	SJ233548	4762	JP
60	B55	Treuddyn	B5101	3	SJ259580	SJ295549	5245	JP
61	B56	Hope	B5373	3	SJ310585	SJ322573	1740	JP
62	B57	Ffrith	B5102	3	SJ295549	SJ310561	2131	JP
63	<b>Total Distance Primary Roads</b>						<b>217730</b> m	
64	Y1	Saltney	B5129	2	SJ369647	SJ331646	5684	JP
65	Y2	Burntwood	Burntwood Rd	2	SJ295636	SJ303663	3156	JP
66	Y3	Wepre	Wepre Lane	2	SJ281677	SJ301691	2756	JP
67	Y4	Wepre	Golftyn Lane	2	SJ285688	SJ284703	677	JP

Table 2. Part of a spreadsheet table used check progress of surveys, video, disease, and position of ash trees.

3.1.2 The video survey involved 1 vehicle, with ash dieback surveying livery, amber light, with 2 members of staff. One person driving the second operating the Garmin Verb video recorder. The camera was mounted on the outside of the vehicle windscreen and operated via blue tooth. The video recorded high resolution videos of the survey routes. Survey speeds were between 10mph and 30mph. On Priority roads the camera was directed to capture the opposite verge which required a double survey pass per section of road surveyed. On Secondary roads the camera was mounted on a roof bar for a head-on image, thus requiring only one survey pass per road surveyed. The resulting data

captured was then transferred onto a computer hard drive and converted into an easily viewable format (the Garmin program being data hungry).

3.1.3 Ash Dieback Resource Survey involved the above vehicle requirements. One person driving the other recording the position of ash trees, groups of ash tree and woodlands containing ash trees growing next to the road. Survey speed ranged between 5mph and 30mph. The position of trees recorded on a paper map of an appropriate scale using a red highlighter to indicate ash trees. Priority and Secondary roads were subject to 2 passes, only recording one side of the road at a time. Following the successful capture of the growing ash trees onto the paper map, the survey sequence was reversed and to verify the accuracy of the rerecording (map indicating the up-and-coming presence of a tree with a visual verification to accredit). A duplicate map was then created and given to the GIS Officer to be digitised onto the Council’s internal mapping system.

3.1.4 Disease Classification Survey, this survey consisted of a hybrid survey whereby trees were surveyed from a slow-moving vehicle, however where the trees-line was obscured an on foot survey was used and where surveying was deemed to be too hazardous video footage was reviewed. The disease classification grading was transferred onto a map using numerical values, these values being used to create a heat map depicting a pictorial image of the disease distributing within Flintshire for a given date. Map sent to the GIS Officer for digitizing and eventually loaded onto the county’s mapping systems.

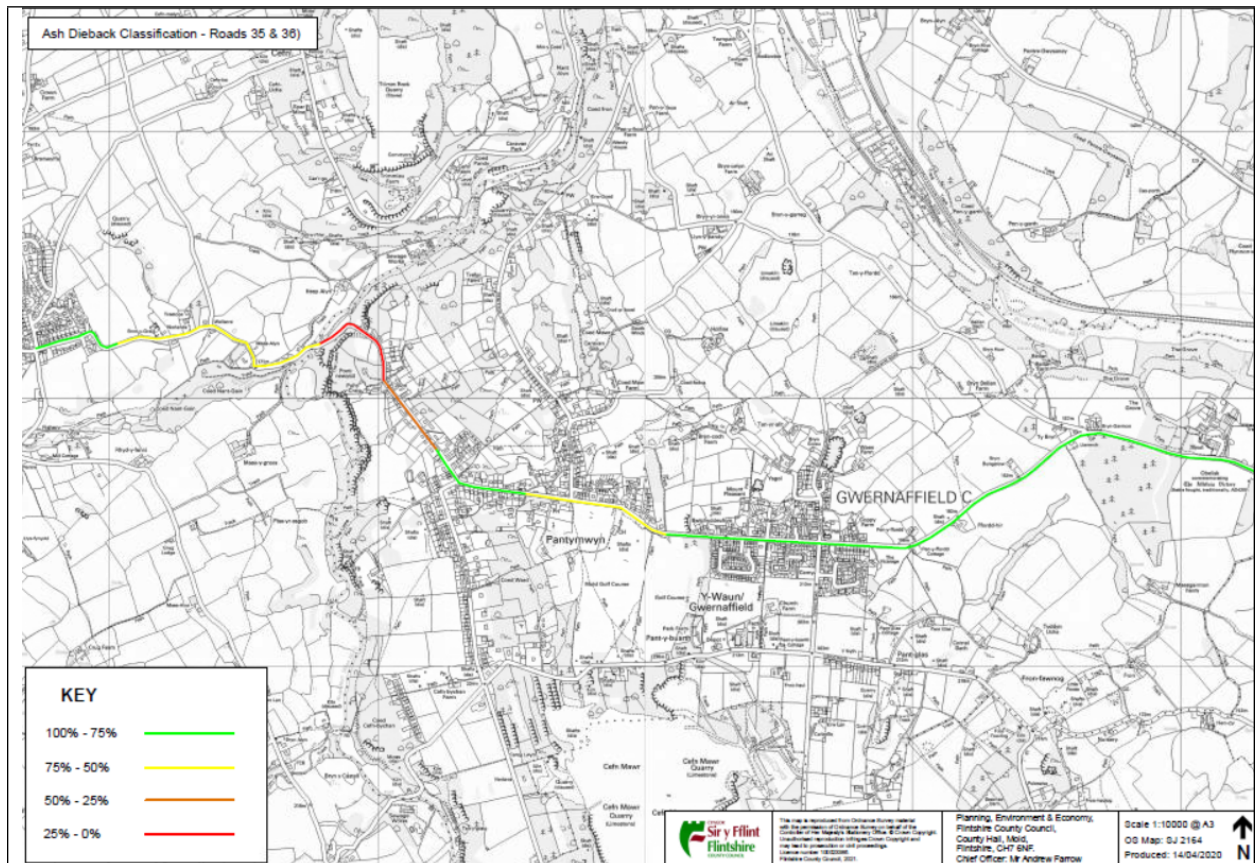


Figure 9 Ash Dieback Disease Classification survey data represented within a heat map.

3.1.5 The final survey created was a foot survey, designed to determine the ownership (public or private), mark the position of infected ash trees and to record the disease class of infection of ash trees growing next to the highways. In addition to the above, and to aid the management process, other data sets are being captured i.e., size tree, no stems, lean, distance from road, ground conditions, basal lesions present, etc. In order to rationalise the survey and limit the amount of data, trees were classified as single (point features), groups (point features) and woodland (polygons, linear features). Survey information being retained within the ARCGIS /Survey123 programs. This information is then used by the administration team to direct land searches (to identify landowners with infected trees), quantify the extent of the work (internal function) and to officially prompt the Authority to instruct landowners to engage with the management of infected ash trees (via a series of official letter). To date 46,606m or 21% of the priority roads have been surveyed on foot and 5,503m or 6% of the secondary roads have been surveyed on foot.

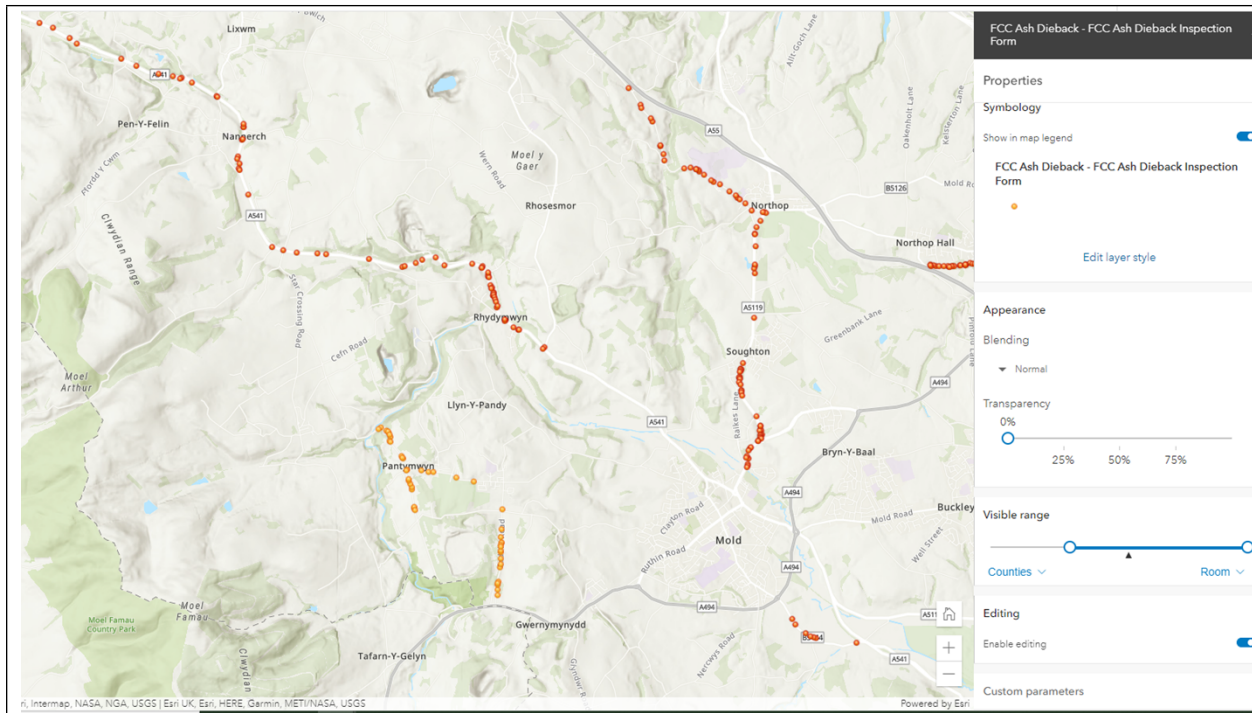


Figure 10. ARCGIS Program used to manage the ADB Survey.

Table 3. Survey Programme Progression 2020

Survey	Started	Ended	Total	% Completed
Roadside Ash Trees	April 2020	June 2020	312,959	100%
Video	July 2020	August 2020	312,959	100%
Disease Class	May 2020	July 2020	312,959	100%
Foot Survey Dev August 2020	Sept 2020	Nov 2020	46,606m PR 5,503M SR	21% 6%

### 3.2 Progression

3.2.1 With reference to Phase 3 “Action” of the Ash Dieback Action Plan, it is imperative that:

- a. The foot survey be completed (the data enabling the council to fulfil our statutory duty under the Highways Act.
- b. Undertake another video survey, recording the change in health of our roadside ash trees and the change in landscape character (both urban and rural).
- c. Undertake a second Disease Classification Survey (second in the series) to enabling officers to observe any change/progress of the disease and if necessary, to priorities or change work schedules.

### 4.0 Conclusion

4.1.1 The 2020-2021 surveys were completed incident free and demonstrate a usefulness in meeting the requirements highlighted within the Ash Dieback Action Plan.

4.1.2 The new methodologies adopted within the survey methods have been tested and found to be the preferred applications for enabling the Council to maintain its level of service.

4.1.3 The evolving nature of the programme is generating a substantial amount of additional work. Previously, as this additional work commitment increases, technical expertise and additional support is being absorbed by drawing in personnel from other council departments/sections. This is not an ideal scenario and only adds to progressing with a disjointed approach and has the effect of applying pressure on their departments. Therefore, to complete the programme and manage the threat imposed by ash dieback, it will be necessary to increase the number of dedicated personnel in line with the activities of other North Wales Local Authorities. The North Wales Tree Officer Group and Mid and North Wales Trunk Roads Agency are in the process of compiling information pertaining to additional persons who have been employed/or are in the process of employing personnel to manage the threat from ADB.



Table 4.

Number and cost of felling FCC owned trees adjacent to the highway Jan-Mar 21

Location	Ref	Number Tree Felled	Cost
Rhydymwyn	B33 T2	1	£1,415.00
Hendre	B33 G3	13	£1,165.00
Hendre	B33 G13	35	£4,260.00
Hendre	B33 G15	3	£850.00
Nannerch	B31 G4	7	£670.00
Trelawnyd	B25 G14	9	£
Trelawnyd	B25 G7	1	£
Trelawnyd	B25 G13	16	£
Trelawnyd	B25 G15	5	£
Trelawnyd	B25 G8	2	£
Trelawnyd	B25 G19	20	£
	Trelawnyd Total	52	£2,415.00
		Total	£10,775.00

Table 5.

Works on FCC owned trees adjacent to the highway planned autumn 2021

Location	Projected Costs
Trelawnyd A5151	£8,000
Ffrwd	£4,000
Pantymwyn	£12,000
Mold Denbigh Rd	£6,900
	Total
	£30,900

Table 6.

Private Ownership Trees Felled

Location	Ref	Number of Trees	Felled
Rhydymwyn	B33 G2	54	45% Felled
Star Cross	B33 15	18	Completed
	Total	72	43

Note a number of owners are poised to fell, however wildlife constraints are inhibiting felling

Table 7.

Administration Overview of Activities

Activity	Number
Number of Land Searches undertaken (started December 2020)	66
Letters sent to private landowners (started January 2021)	37
Ratio of enquiries following contact needing advice.	45%

Table 8.

An Overview of the work commitments for delivering Flintshire's ADB Highways Programme 2020-21.

Position and when seconded	Commencement	ADB Role	ADB Time Commitment
Woodland Officer	April 2020 due to lockdown	Coordinate/Dev.Programme Develop and Trial Surveys Survey Roadside Trees Liaise with landowners Offer Advice and Training. Research	90%
Biodiversity Officer	April 2020 due to lockdown	IT Support Survey and Technical Advice	5%
Admins Support (2x officers PT)	Started October 2020	Organise Files Coordinate email response and phone hub. Land searches Organise and send out letters	50%
Tree Inspector	April 2020 due to lockdown	Survey (Ezytreev) Highways link officer. Liaise with landowners	25%
Relief Ranger (Arborist)	April 2020 due to lockdown	Survey Technical and IT support.	90%
Legal (ADB group members)	Continuous	Legal Advice Enforcement	2% (estimated)
Others Tree Officer, Highways GIS, Administration and PR	Contributed as and when required.	Policy Work Highways Safety & Licensing Raising Awareness and PR Research Digitising and Mapping	180% (accumulative time)

4.1.4 The level of the disease identified within the County supports the information offered by research groups and educational institutions. Thus disease is widespread in favourable areas (damp, cool, shaded woody valleys), infected trees with some resistance will succumb to a secondary infection from another tree pathogen (generally within a 5 year period), trees growing in damp waterlogged soils with basal lesions are prone to instability, free grown/isolated trees will be slow to surrender to the disease (suggestion that some disease resistant ash trees need to get re-infected every year) and the disease will significantly affect a high proportion of the County's ash trees (2020-2021 survey, approximately 4,700 tree have been surveyed only 3 ash trees have been recorded as having no signs of ash dieback).

## 5.0 Next Steps

5.1.1 Continue surveying and developing the existing survey techniques.

5.1.2 Continue working with our partners and monitor the industry for changes in best practice methods.

5.1.3 Develop a better system of fast streaming information from ARCGIS to the administration team, thereby reducing the time spent by surveyors on administration.

5.1.4 Intergrade a new enforcement function into the system to re-inspect roads and verify the removal of infected trees or apply more pressure (ideally avoiding a Section 154 notice)

5.1.5 If possible, quantify the extent of unregistered land and then reevaluate the cost involved with removing infected ash trees from this land.

5.1.6 Implement the best practice road trials successfully demonstrated in the removal of roadside ash trees at Trelawnyd and Hendre.

5.1.7 Continue to develop an awareness of ash dieback within council departments with landholdings and ash trees.

5.1.8 Improve the communications system of monitoring and recording public enquirers and responses

5.1.8 Continue to prioritise trees posing risk and make safe. Continue to work with landowners to reduce the risk to Highway and Council land.