Report to the Finance Strategic Policy Committee

Factors Impacting the Maintenance of Dublin City Council's Road Network

Introduction:

The Executive Manager (Engineering), Roads Section, presented a report to Dublin City Council's Finance Strategic Policy Committee, on the 6th June 2020, titled ***"Funding the Maintenance of Dublin City Council's Road Network"***. The report set out the Business Case for securing additional funding for investment in the maintenance of the Dublin city's road network and provided an overview of the following:

- The role of Dublin City Council's Road Maintenance Services
- Dublin City Council's corporate objectives for the maintenance of roads
- Investment streams in the maintenance of Dublin city's roads network – General Purpose Grant versus Local Property Tax
- The condition of Dublin City Council's road network
- Insights from Road Maintenance Services' Transport Asset Management System (TAMS)
- Traffic volumes and mode share within Dublin City Council's administrative area
- Road Maintenance Services Works Programme 2020
- Utility openings and road and footpath reinstatements

It was agreed, that a copy of *'the report'* would be issued to the Minister for Transport, Tourism and Sport for consideration. This report was subsequently sent to the new Minister for Climate Action, Communications Networks and Transport, Eamon Ryan through the Chair, Councillor Séamas McGrattan, on the 13th July 2020.

Emerging from the Committee meeting's discussions, it was further agreed that an additional report would be brought to a future meeting of the Committee, identifying the key factors that have an impact on the maintenance of Dublin City Council's road network. The key factors include the following criteria:

1. Funding constraints
2. Traffic volumes, transport modal share and transport modal shift
3. Impact of utility openings and reinstatements
4. Severe weather events/ winter maintenance
5. Traffic permits and restrictions
6. Planned maintenance versus reactive maintenance.
7. COVID-19 Pandemic

Background to the Roads Section, Dublin City Council

Dublin City Council's Roads Section is responsible for the management of Roads Maintenance Services, Road Design and Construction, Transportation Planning and the Survey and Mapping function for Dublin city. Dublin City Council manages transportation assets, with a conservative estimated value of €2.35 billion, consisting of 1,250km of public roads and footways, 107 bridges and traffic

infrastructure. This transportation network also houses a subterranean network of critical infrastructural energy, water, drainage and communications assets, which enhance the connectivity and socio-economic needs of Dublin city. This web of underground ducting and services impacts on the road and footway operations and maintenance activities, on a daily basis. The efficient operation and maintenance of these assets is imperative, in delivering the requisite service to all road users, while ensuring that value for money is achieved. The maintenance works are carried out through a combination of the Roads Maintenance Services Operational Divisional staff and expert external contractors'.

1. Funding Constraints

Dublin City Council is one of four local authorities that receives no funding from the Department of Climate Action, Communications Networks and Transport (formerly the Department of Transport, Tourism and Sport) for investment in the regional and local roads restoration and improvement programme.[1] In the current year, the Department has made over €400-Million available to other local authorities for investment in the maintenance of regional and local roads. Grants are issued under the category headings such as *'restoration improvement - €245M'*, *'restoration maintenance - €42M'*, '*supplementary restoration maintenance - €26M'*, '*discretionary grants - €85M'* and '*rehabilitation of former national roads - €7Million'*.

In 2020, Dublin City Council will invest €12.5 Million in the delivery of the Road Maintenance Services Annual Works Programme. €3.5 Million of this funding has been made available from the City Council's Revenue Budget, with a further €9-Million received from the Capital Budget. This investment will facilitate the restoration and maintenance of approximately 14km of regional and local roads and the repair/ renewal of approximately 11km of footpaths. As illustrated in *'Table 1'* below, Dublin City Council's road network is 1,239km in length.

Classification	National	Regional	Local Primary	Local Secondary	Local Tertiary	Total
Length (km)	1	244	118	4	872	1,239

Table 1 - Road Classification Dublin City Council Administrative Area

Visual condition surveys, conducted in 2018/2019, have indicated that 11% (27km) of the regional road network and 20% (196km) of the local road network are in need of structural restoration/ road reconstruction. However, the current level of funding available to the Road Maintenance Services Division will only facilitate the repair of 14km (1%) of Dublin City Council's road network deemed to be in need of structural restoration/ reconstruction.

Decisions therefore need to be made on which roads are to be prioritised for repair and for inclusion in the *Annual Works Programme*. These decisions are based on a combination of quantitative and qualitative assessments, emerging from a combination of data sets, assembled and analysed from Machine Road Condition Surveys (incl. skid resistance) of the road network, visual condition surveys, defects and hazards recorded on our asset management system, service requests, strategic and local issues and engineering expertise, experience and knowledge.

[1] *The other local authorities that do not receive funding from the Department for investment in regional and local road restoration and improvement are South Dublin County Council, Fingal County Council and Dún Laoghaire Rathdown County Council.*

Planned works, which are works delivered through the aegis of the Annual Works Programme, are carried out by a framework of contractors', operating on behalf of the Road Maintenance Services' Division. These works are supplemented by reactive works, such as the repair of potholes, carried out by the Division's operational crews'. Further details are provided in section 6 of this report.

Table 2 below sets out details from the *'National Oversight and Audit Commission, (NOAC) Local Authority Performance Indicator Report, 2018'*, together with information received from the national Road Management Office (RMO). It highlights the investment that each local authority made in the restoration and improvement of their regional and local roads during 2018. The Road Management Office has advised that the *'amounts expended'* in the restoration and improvement of these roads, include both grants from the Department, together with supplementary investment from the local authorities. In the case of the four Dublin Local Authorities, the investment recorded is exclusively from their own budget resources.

Photographs illustrating roads in Dublin City that are in need of structural restoration and reconstruction.

Table 2 - Regional and Local Roads Grant Works

Authority	KM of regional road strengthened during 2018	Amount expended on regional road strengthening during 2018 (€)	KM of regional road resealed during 2018	Amount expended on regional road resealing during 2018 (€)	KM of local road (i.e. total of primary, secondary and tertiary) strengthened during 2018	Amount expended on local road strengthening during 2018 (€)	KM of local road resealed during 2018	KM of regional and local roads in each local authority.
Carlow	12.2	744,282	1.3	58,372	53.4	2,753,164	17.4	1,251
Cavan	13.3	1,518,500	19.2	453,192	81.7	4,685,807	106.5	2,908
Clare	13.6	1,784,375	17.7	465,089	93.1	6,022,451	123.1	4,125
Cork City	1	488,796		10.2	3,516,730			897
Cork County	34.1	8,470,723	64.2	1,999,647	185.5	15,935,815	271.8	11,752
Donegal	38.9	5,489,882	25.2	813,161	232.9	12,438,043	105.5	6,173
Dublin City	7.3	3,531,903			14	5,382,040		1,239
Dún Laoghaire* Rathdown	3.3	2,206,160			4.2	1,145,454		760
Fingal*	8.6	1,514,330	4.8	95,000	14.6	1,614,512	5.9	1,335
Galway City	1.7	713,475			1.9	240,600		286
Galway Co.	20.3	3,146,252	27.4	1,073,310	150.9	1,0338,526	106.5	6,540
Kerry	11.8	2,351,106	24.8	794,453	80.1	7,047,608	71.4	4,454
Kildare	21.7	3,207,000	8.4	183,838	81.9	6,083,754	17	2,494
Kilkenny	8.4	1,397,363	19.7	695,894	52.3	5,360,712	40.5	3,054
Laois	5.9	1,271,049	4.7	271,144	21.9	2,449,897	23	2,211
Leitrim	13.7	1,585,085	5.9	259,785	89.9	3,938,458	45.7	2,125
Limerick City and County	9.5	2,002,767	19.1	650,767	75	5,883,422	80	3,815
Longford	5.4	701,641	5.1	124,524	56.3	3,086,246	46.8	1,557
Louth	9.4	1,783,657	6.3	406,665	18.9	1,371,936	47.2	1,500
Mayo	18	3,610,193	8.5	289,316	103.4	8,514,139	239.7	6,272
Meath	19.8	3,602,923	15.8	553,529	62.5	6,301,820	83.2	3,181
Monaghan	7.1	1,477,989	13.5	421,463	39.9	4,313,022	49.1	2,454
Offaly	24.8	2,210,754	8.8	284,615	70.4	3,022,710	44.9	2,090
Roscommon	14.1	2,466,182	0.7	29190	160.8	6,023,656	133.2	3,775
Sligo	4.1	713,824	5.6	159316	68.4	5,443,078	62.9	2,681
South Dublin	2.1	310,000			11.2	1,816,418		906
Tipperary	32.2	3,284,681	19.5	669,516	132.7	9,433,764	68.5	5,579
Waterford City and Co.	10.3	1,790,293	19.3	672,768	30	3,918,492	42.7	2,819
Westmeath	12.5	1,597,817	11	299,631	93.1	5,114,715	57.5	2,207
Wexford	18.1	2,961,071	27.2	80,2617	56.7	5,424,774	56	3,552
Wicklow	12.9	2,180,765	14.6	385,137	68	3,838,065	20.2	2,289
Totals	**416.1**	**70,114,838**	**398**	**12,911,939**	**2,215.8**	**162,459,828**	**1,966**	**96,281**

*NOTE: *These local authorities did not receive grants from the Department of Transport, Tourism and Sport. Works were funded through their own resources*.

2. Traffic volumes and modal share on Dublin City Council's road network

Dublin City Council, in partnership with the National Transport Authority (NTA), conduct an annual survey on road user trends, in terms of the modal share of vehicles and people crossing the canal cordon. Table 3 below presents the total numbers of vehicles, pedestrians and cyclists crossing the Canal Cordon in the inbound direction between 7am and 10am, during a typical morning in 2018.

Mode	Count
Bus	1,837
Car	48,820
Taxi	4,399
Walk	23,858
Cycle	12,227
Goods	1,153
Motorbike	1,477

Table 3 – Traffic count canal cordon (inbound 7am to 10am).

As clearly illustrated from the table, the City's road network attracts a high volume of traffic and people movements in comparison to other major Irish cities. Almost **60,000** vehicles crossed over the canals and into Dublin city during this three-hour window, with a further **40,000** pedestrians and cyclists travelling in the same direction. Buses, lorries and cars continuously braking, turning and accelerating on the City's streets has an enduring detrimental impact on the roads' surface, resulting in deterioration, erosion and the onset of cracking and potholes.

In addition, increased economic activity in Dublin city, in recent years, had led to an increase in the level of construction activity, adjacent to roads and footways and associated construction traffic travelling on Dublin's roads and streets. Consequently, the confluence of these factors reduces the serviceable life of the roads and footways and places an attendant need for intervention and investment in reactive maintenance (pothole repair) and planned maintenance works.

Dublin City Council, through its stated policies, plans and objectives, will continue to work closely with its key partners and stakeholders, to promote sustainable transport measures and encourage a modal shift, weighted towards walking and cycling. In reducing our reliance on private car usage, the modal shift acts as a catalyst in generating better environmental, health and wellbeing outcomes for our citizens and visitors. However, there is still an ongoing need for an appropriate and proportionate level of investment in the maintenance of Dublin city's road assets, in the interest of protecting the safety of all road users; particularly vulnerable users, such as pedestrians and cyclists.

3. Impact of Utility Openings and Reinstatements

Dublin City has an extensive network of utility infrastructure, located beneath its road network, including water, drainage, gas, electricity and ducting for fibre optics. These services are essential for promoting Dublin as a City to live, to visit and to conduct business in. In 2019, Dublin City Council received approximately 13,500 traffic permit applications. The majority of these related to Utility companies seeking permission to open the roads and footways, to access or install their infrastructure, to carry out essential repairs or in order to upgrade their services.

Dublin City Council performs a regulatory function in regard to inspecting these openings and reinstatements, to ensure that they are carried out in accordance with relevant national specifications and standards. However, it is not possible for supervisory staff to be present and check the quality of reinstatement at all openings. Utility road openings and reinstatements have a detrimental impact on the structural integrity of roads and ultimately reduce the roads' design life. This phenomenon necessitates additional maintenance works on the affected roads and thereby the need for additional funding and resources.

Dublin City, as the capital city, administrative and educational centre, economic engine for the State, and a major hub for residential development, businesses, and tourism, has more utility openings each year in comparison to all other local authorities. This invasive activity, places further demands on the road and footway structures, with increased levels of damage in comparison to other local authorities and therefore creates a greater need for intervention and investment.

Photographs illustrate examples of utility reinstatements failing on the road network, and an example of ducting, which has not been laid to the correct depth.

4. Severe Weather Events/ Winter Maintenance:

Each year during the period October to April, the Road Maintenance Services Division manages a winter maintenance programme. This programme involves the treatment of approximately 300km of the road network with gritting salts, on those occasions that freezing and icy road conditions are forecasted. To illustrate the regularity of these events, there were twenty-five such incidents during the winter maintenance period 2019 to 2020, where road temperatures were predicted to fall below 0^{o}Celcius.

Severe weather conditions, such as prolonged periods of snow and ice, have a detrimental impact on the quality of the road network. For example, following Storm Emma (February to March 2018), which brought severe snow and ice conditions, the Road Maintenance Services Division identified €6.3 million worth of damage caused to Dublin city's road and streets. Examples of the type of damage included the lifting of road sections from freeze and thaw action on soils and the deepening and widening of potholes from expanding water / ice.

In order to help fund the cost of the remedial works that were required to repair the damage to these roads, Dublin City Council applied to the Department of Transport, Tourism and Sport for financial support, however no funding was forthcoming. Consequently, Dublin City Council funded the necessary repair works through its own financial resources.

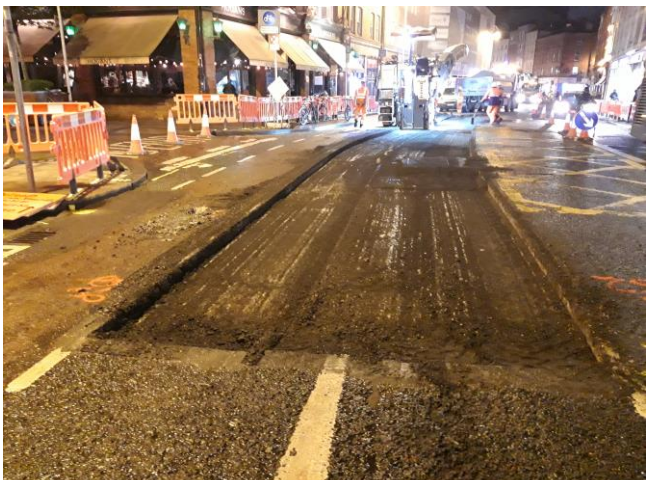
Photograph illustrating damage to the Stillorgan Road, as a result of Storm Emma.

Photograph illustrating damage to Grace Park Road, as a result of Storm Emma.

5. Traffic permits and restrictions/ temporary traffic management

Dublin City Council's Roadworks Control Unit grants permissions for contractors, operating on behalf of the Road Maintenance Services Division, to carry out road resurfacing and reconstruction works on the City's streets. In order to reduce congestion and to minimise the disruption of the maintenance works on the safe and efficient movement of people, goods and services across Dublin city and in order to reduce the impact of works on operational bus corridors, businesses, educational centres and recreational amenities, it is necessary to restrict such activities on strategic and busy commuter routes, to the evening and night-time hours and at weekends.

These works and linked restrictions have a significant cost implication on the tender sums received from contractors, for works that are to be undertaken outside normal business hours. These works cost more than works of a similar nature that are carried out during normal business hours. Additionally the temporary traffic management and safety requirements and measures to be undertaken, for works of this nature and complexity, in a city centre built environment, are more complex and costly.



Photograph - resurfacing works being carried out at night on South Great George's Street.

Photograph - resurfacing works being carried out at night at Lincoln Place.

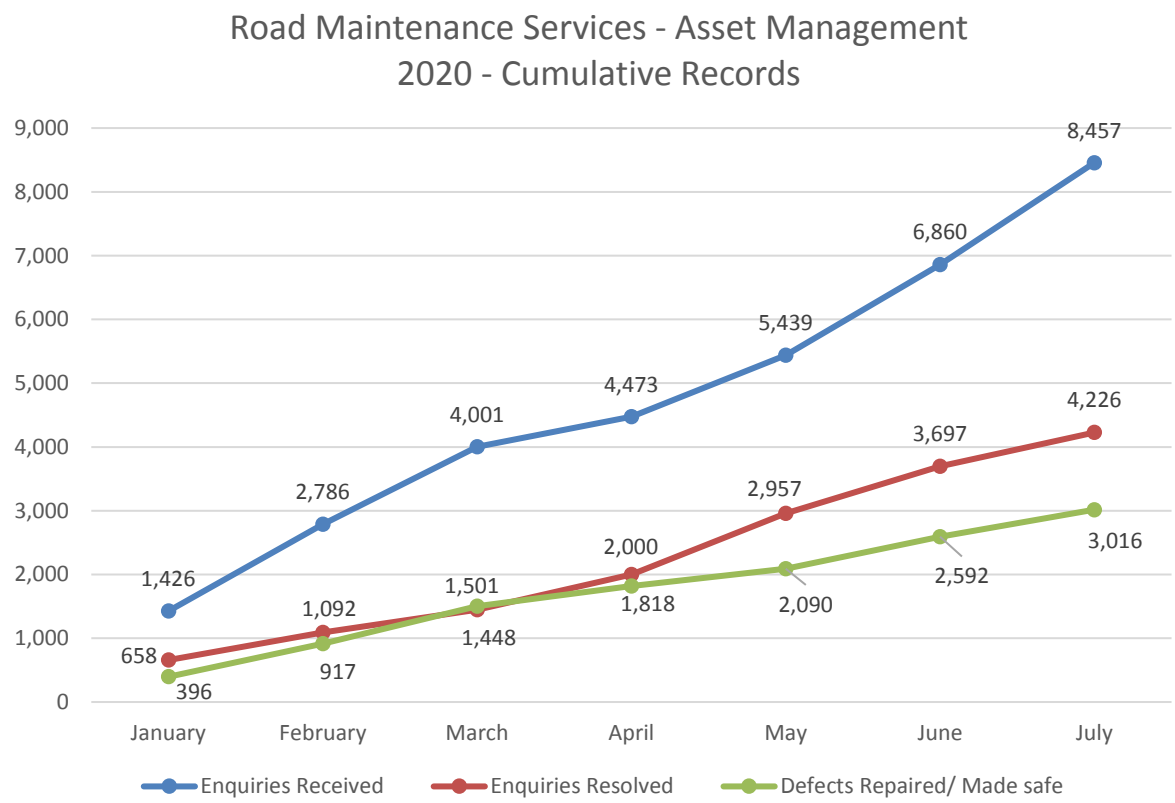
6. Reactive Maintenance versus Planned Maintenance.

The graph presented below provides a snapshot of Road Maintenance Services' reactive maintenance for the period January 2020 to July 2020, in terms of enquiries and services requests received (8,457), enquiries resolved (4,226), and defects/ hazards repaired/ made safe (3,016).

Potholes and hazards on the carriageway and trips on footpaths are prioritised for repair, based on the severity of the defect and the Traffic Impact number of the road. Critical defects are tended to first and lower priority defects are added to a works programme and are repaired when resources become available.

Underinvestment in planned maintenance, such as the resurfacing and reconstruction of large sections of carriageway or the reconstruction of footpaths, results in a greater need for reactive maintenance i.e. repairing potholes, tree trip hazards on the footpaths that have emerged and worsened over time, as a consequence of repairs not being carried out in a timely manner.

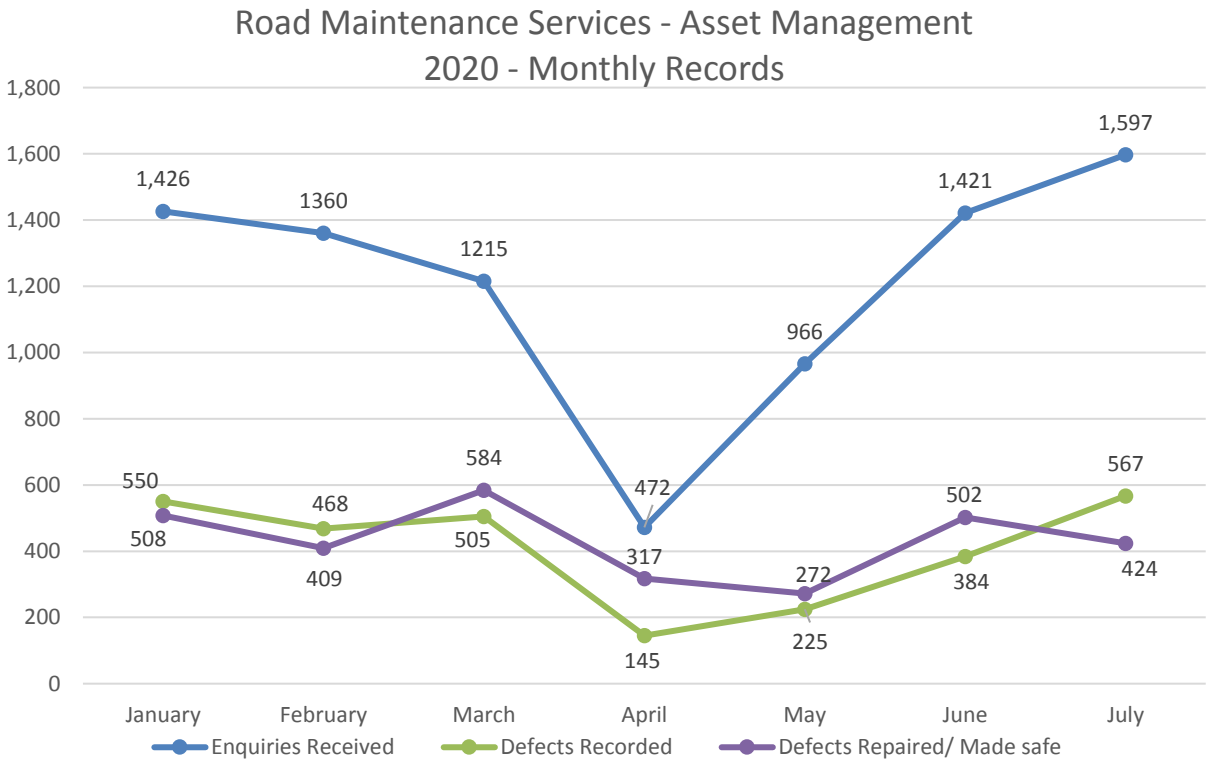
Additional investment in planned maintenance works would decrease the need for reactive maintenance works, which would not only make the road network safer for all road users, but would reduce the need for reactive maintenance and the costs associated with same.



7. COVID–19 Pandemic

The emergence of Covid-19 in Ireland in March 2020 has impacted the Roads Maintenance Services Division in carrying out its functions efficiently and effectively. This operational led Division requires a 24/7/365 presence on Dublin city's roads and streets to manage daily occurring incidents. The operational and governance constraints imposed by Covid-19, in ensuring and leading a new culture in ensuring the safety of staff, contractors and citizens alike, has required a reconfiguration and a re-engineering of the way tasks and activities are carried out, on behalf of Dublin City Council. The adaptation of new innovative solutions, such as the introduction and implementation of POD systems of work, additional PPE safety requirements and the challenges posed by a nascent communications environment, has placed additional challenges on the Road Maintenance Services Division, in effectively delivering its essential services.

The graph presented below illustrates the level of service requests received, defects recorded, and defects and hazards repaired and/or made safe during the period January to July 2020. As evidenced by the data, productivity levels fell during the months of April and May, when compared with the earlier months in the year. For example, just 272 defects/ hazards were repaired and/or made safe during May, this compares with a total of 584 during March. This reduction in output was a result of the Division's response to the COVID-19 pandemic, when it became necessary to reduce the number of crews operating across the City, in order to 1) minimise the risk of staff becoming infected with COVID-19 and 2) ensure the continued delivery of critical services , such as responding to serious hazards on the road network. It is expected that the Division's response to COVID-19 will continue to impact productivity levels over the coming months.



8. Conclusion

This report highlights that there are a number of critical factors that impact on the maintenance of the road network in the City centre and its environs, such as funding constraint, high traffic volumes, the impact of utilities, the impact of severe weather events, the impact of the current Covid-19 pandemic, the need to keep Dublin city moving, to support businesses and commuters and the enduring need to provide a steady state and appropriate level of investment in planned maintenance activities.

As referenced in the conclusion section in the report to Dublin City Council's Finance Strategic Policy Committee, on the 6th June 2020, titled ***"****Funding the Maintenance of Dublin City Council's Road Network"*, Dublin City roads infrastructural network plays a pivotal role in ensuring the safe and efficient movement of people, goods and services, across Dublin city and provides the vital access and egress transport links to and from the city. It is therefore critical, that there is sufficient ongoing support and investment in the maintenance of Dublin city's existing road and footway network.

Dermot Collins

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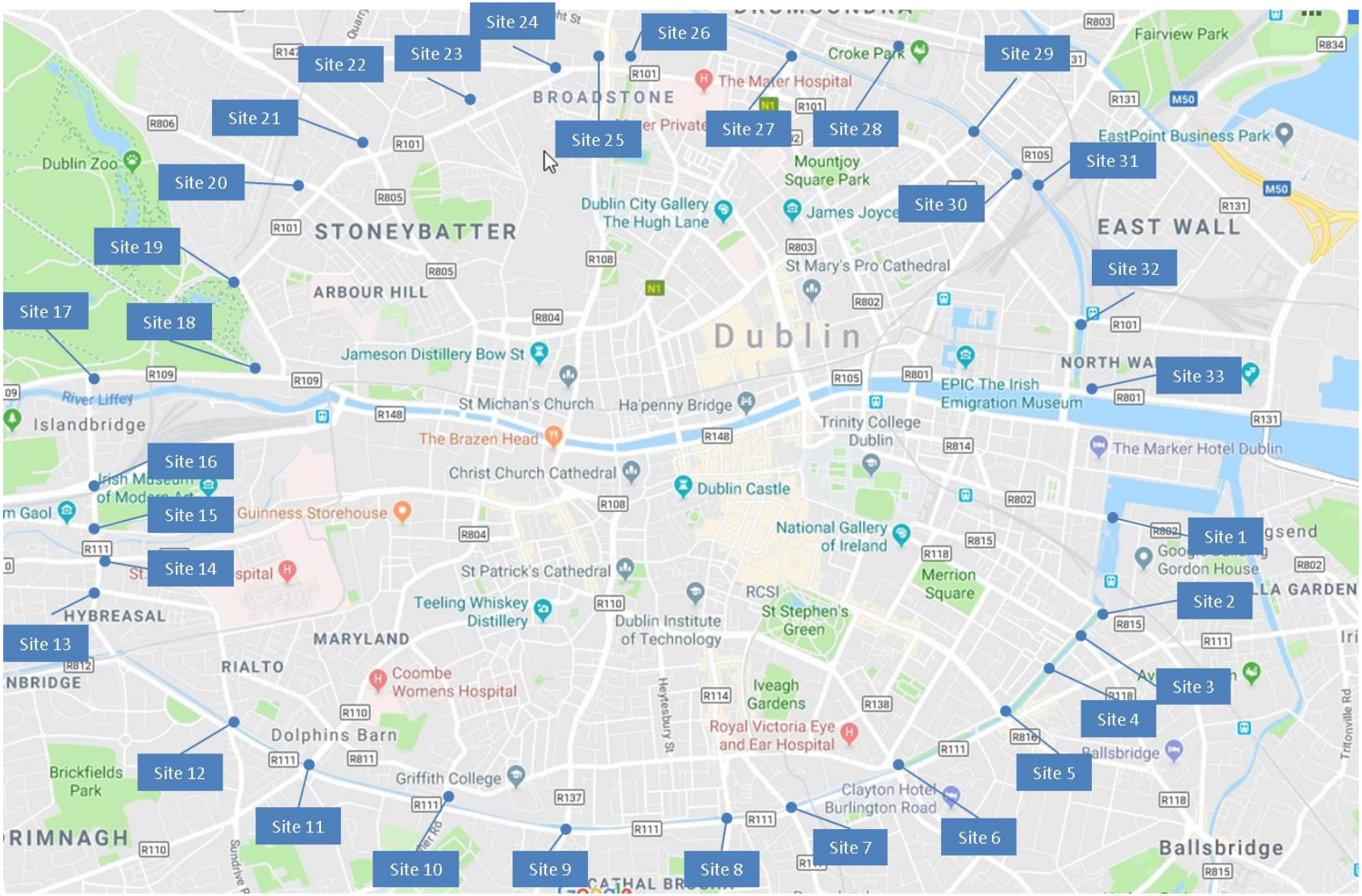
Executive Manager (Engineering)

Roads Section **19th August 2020**

Factors Impacting the Maintenance of Dublin City Council's Road Network

Appendix A

Canal Cordon Count Locations:



Photographs illustrating roads in Dublin City that are in need of structural restoration and reconstruction.

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Photograph illustrating high traffic volumes of the City's road network.

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Photograph illustrating example of utility reinstatement failing on the road network.

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Photograph illustrating utility laid to the incorrect depth.

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