ITEM No …4……..

REPORT TO: **CITY DEVELOPMENT COMMITTEE – 21 JUNE 2021**

REPORT ON: **LOCHEE ROAD ROUTE CORRIDOR IMPROVEMENTS**

REPORT BY: **EXECUTIVE DIRECTOR OF CITY DEVELOPMENT**

REPORT NO: **175-2021**

1 PURPOSE OF REPORT

1.1 To provide a summary of a traffic management study completed on the Lochee Road corridor between the Dudhope Terrace and Polepark Road junctions, which has assessed road capacity options to improve traffic flow and associated air quality over this section of the corridor.

2 RECOMMENDATION

2.1 It is recommended that the Committee:

a note the outline design proposals and outcomes of the study;

b remit the Head of Sustainable Transport & Roads to commission a detailed air quality modelling assessment of the preferred Option 2 proposal, and provide a report to the City Development Committee on the air quality impact assessment; and

c remit the Head of Sustainable Transport & Roads to deliver complementary works to improve safety at the Cleghorn Street junction.

3 FINANCIAL IMPLICATIONS

3.1 The Executive Director of Corporate Services has confirmed that the costs associated with recommendation 2.1c of this report can be met from the allowance contained in the Capital Plan 2021-26 - Service Provision – Road Safety Measures funding.

3.2 The value of the proposed work outlined in recommendation 2.1c of this report is £20,000.

4 BACKGROUND

4.1 With reference to Article V of the Minute of the Meeting of the Community Safety and Public Protection Committee of 7 June 2021, Report No 164-2021 refers to a proposal for a low emission zone (LEZ) in Dundee. The assessment of the LEZ recommended Lochee Road be excluded from the LEZ due to displacement of non-compliant traffic from the route resulting in a net disbenefit to traffic congestion and associated air quality within the City.

4.2 The Scottish Environmental Protection Agency (SEPA) has carried out a traffic emissions assessment of the recommended LEZ scenario which identifies that emissions on Lochee Road outside of the LEZ boundary would experience a reduction in NOx emissions by an average of 20% as a result of the LEZ implementation. In advance of the LEZ implementation, improvements in air quality will be achieved from the introduction of zero emission buses by Xplore Dundee on the Service 28 route. The new electric buses are currently targeted for deployment on this route from autumn 2021.

4.3 Lochee Road is an “A” class main arterial road with an average annual daily traffic flow of approximately 22,000 vehicles. The Dudhope Terrace and Polepark Road signalised junctions are recorded as the primary traffic congestion points on the corridor, due to weekday tidal flow queuing at peak periods.

4.4 A traffic management study was commissioned in 2020 to consider road improvement options to reduce congestion, and further improve air quality, on the Lochee Road corridor between the Dudhope Terrace and Polepark Road junctions. This study was commissioned to support the consideration of the Dundee Low Emission Zone (LEZ) as air quality monitoring along Lochee Road has identified locations where nitrogen dioxide (NO2) levels are in exceedance of the annual mean AQ Objective, with road traffic being the main source. A presentation was provided to Elected Members on 26 May 2021 detailing the findings of the traffic management study commissioned.

4.5 The road improvement options detailed in this report have been assessed using Linsig traffic signal modelling software and Paramics microsimulation traffic modelling. The study has utilised the 2019 Dundee City Paramics model which is the same traffic model used in the development of the Dundee LEZ. Once traffic patterns have stabilized post Covid-19 it is intended to update the Dundee City Paramics model to account for changes in traffic levels and associated travel behaviours.

5 ACTIVE TRAVEL IMPROVEMENTS

5.1 A Lochee Road corridor active freeway feasibility study is scheduled to be completed in 2022. This study is aimed at identifying a strategic route between Lochee and the City Centre to accommodate segregated walking and cycling. The findings and preferred route option of this study will be reported to the City Development Committee on conclusion.

5.2 Preliminary assessment of the corridor identifies two alternate potential active freeway routes about the Dudhope Terrace and Polepark Road junctions. The first would associate an on-line segregated active freeway facilitated by way of road corridor widening. The second is an off-line route by way of Black Street, St Mary's Place, and Dudhope Park. Consultation with community groups and stakeholders during the feasibility study may also identify additional routes options.

5.3 The on-line active freeway route would associate road corridor widening requirement and associated land occupation out with the current road boundary. The second option would have a lesser impact on the Lochee Road corridor over this section and would primarily associate enhanced cycle crossing provision at the Dudhope Terrace junction.

5.4 Prior to conclusion of the active freeway feasibility study, the traffic management study has included a main line active freeway preliminary design in the proposal, in order to assess the greater impact implications of the two options in terms of value and land requirement.

5.5 It is proposed that following completion of the active freeway feasibility study, the junction design proposal is updated to accommodate the preferred active freeway route alignment through this section of the Lochee Road corridor.

6 BUS PRIORITY IMPROVEMENTS

6.1 The Lochee Road corridor is also identified as a strategic public transport gateway to the City Centre. Bus priority could be improved over the corridor by way of either traffic signal technology improvements, with option for approaching bus identification to extend green phases should junction capacity be physically increased, or by way of providing dedicated bus priority lanes.

6.2 Traffic modelling assessment of both the Option 2 junction widening and Option 3 dual carriageway improvements identified that providing dedicated bus lanes wouldn't provide additional journey time savings to bus services, as both improvement options aim to resolve current junction queuing congestion. Providing dedicated buses lanes would however result in a journey time disbenefit for general traffic in both Options 2 and 3 as limiting lane capacity would generate increased queuing with associated negative impact on air quality.

6.3 Both Options 2 and 3 are designed to accommodate introduction of bus lanes without the requirement for further extensive engineering provision. This future proofing of the proposals would allow for bus lanes to be introduced in the future should traffic volumes increase providing a positive net benefit to bus journey times from this form of intervention. It is noted however that the Scottish Government's objective is to reduce car kilometres by 20% by 2030.

6.4 The traffic modelling exercise identified increased junction capacity with traffic signal technology improvements as the optimum bus priority improvement provision rather than dedicated bus lanes.

7 OPTION ASSESSMENT

7.1 Following completion of an initial Stage 1 option generation and sifting exercise, the following 3 options were taken forward to traffic modelling assessment and preliminary design.

7.2 Option 1 – Existing Road Layout Reconfiguration

a This option is a do minimum intervention designed to improve traffic flow within the confines of the existing road layout without road widening. The option features a revised road marking arrangement with reduced lanes widths to accommodate greater capacity at the junctions without the requirement for significant infrastructure improvements.

b The traffic modelling exercise identified that minor improvements to road layout configuration wouldn't significantly improve traffic congestion at the junction as reduced lane widths would result in lower capacity saturation flows.

The Option 1 preliminary cost estimate is £150,000

7.3 Option 2 - Junction Widening

a This option associates road widening about the two signalised junctions to provide additional lane capacity which will enable more vehicles to pass through the junction in each cycle-time, thereby reducing delays and vehicle queuing. This option requires land out with the current road boundary and significant engineering interventions given the topography and constrained nature of the site.

b A drawing detailing the Option 2 preliminary design proposal is included in Appendix 1 of this report and can also be viewed via following link:

www.dundeecity.gov.uk/sites/default/files/publications/appendix_1.pdf

c This road improvement option features two lanes going straight through the junctions in both directions. The traffic modelling exercise indicates that this option would achieve an approximate journey time saving of 30 seconds during the peak periods.

d Other improvements incorporated in the Option 2 junction widening proposal are widening of the northbound footway to move traffic flow further away from the residential properties, and prohibiting right turn manoeuvres from the Cleghorn Street junction to remove traffic flow restrictions associated with queuing vehicles at this junction. It is noted that the proposed reinstatement of the central reserve island on Lochee Road at the Cleghorn Street junction would revert this aspect of the road layout to the original planned arrangement.

e The traffic modelling exercise undertook an assessment of removing the right turn into and out of Rankine Street. While this intervention would improve northbound traffic flow on Lochee Road, it would lead to redistribution of traffic onto less appropriate roads such as Inverary Terrace, Albany Terrace, and Lawside Road. Due to the redistribution implications of this measure, this turning manoeuvre prohibition has not been incorporated in the Option 2 proposal.

The Option 2 preliminary cost estimate is £5.62 million

7.4 Option 3 - Dual Carriageway

a This option features upgrade of Lochee Road between the Dudhope roundabout and Rankine Street to a two-lane dual carriageway standard. This option was considered as provides the greatest capacity solution, and would be required to accommodate a dedicated bus priority lane corridor over this section of Lochee Road.

b A drawing detailing the Option 3 preliminary design proposal is included in Appendix 2 of this report and can also be viewed via following link:

www.dundeecity.gov.uk/sites/default/files/publications/appendix_2.pdf

c Due to the primary congestion points on the Lochee Road corridor being the Dudhope Terrace and Polepark Road signalised junctions, the traffic modelling assessment identified the dual carriageway option would not present any further improvements to journey times than achieved by the Option 2 junction widening proposal, which includes two lanes through these junctions. Similarly, the dual carriageway option would achieve comparable air quality improvements to the Option 2 junction widening proposal due to the limited requirement for road capacity improvement to alleviate congestion out with the two signalised junctions.

The Option 3 preliminary cost estimate is £18.9 million.

8 CONCLUSIONS

8.1 Traffic Levels in the city have been static for the last few years up until the 2020 Covid-19 pandemic, and it is noted that in May 2021 traffic levels on the Lochee Road corridor were between 10% and 15% lower than the 2019 traffic data utilized in the study's modelling exercise. At present reduced peak period traffic levels have minimize junction queuing delays to a level where the proposals outlined in this report would not provide significant journey time savings. It is assumed that traffic volumes will revert back to 2019 levels once the pandemic is over.

8.2 Option 2, junction widening at the Dudhope Terrace and Polepark junctions, is assessed as the optimum road layout provision to accommodate traffic flows and it is anticipated that it will assist in improving air quality on the Lochee Road corridor, based on 2019 traffic data.

8.3 SEPA have been unable to utilise the Air Quality City Model for Dundee due to a complex cyber-attack in December 2020 which has significantly impacted access to their internal systems and processes. SEPA have advised that the Air Quality modelling work will be undertaken over the summer, which will provide details of predicted changes to roadside concentrations including detailed work on Lochee Road and the LEZ area. Once the air quality impact of the LEZ proposal is determined, secondary air quality modelling can be completed to assess the magnitude of further reduction associated with the junction capacity improvements outlined in this report. It is proposed this further air quality analysis work be undertaken on completion of the LEZ detailed modelling work, and the findings of the secondary air quality modelling assessment reported to the City Development Committee.

8.4 A minor improvement proposal to prevent right turn manoeuvres at the Cleghorn Street junction has been assessed by the traffic modelling exercise to improve traffic flow and is incorporated in the Option 2 junction widening road layout proposal. The Cleghorn Street junction improvement can be delivered as an advanced works element and would complement both the current junction corridor arrangement and the major project proposal detailed in this report.

9 POLICY IMPLICATIONS

9.1 This report has been subject to an assessment of any impacts on Equality and Diversity, Fairness and Poverty, Environment and Corporate Risk. There are no major issues.

10 CONSULTATIONS

10.1 The Council Management Team have been consulted in the preparation of this report and are in agreement with its content.

11 BACKGROUND PAPERS

11.1 None.

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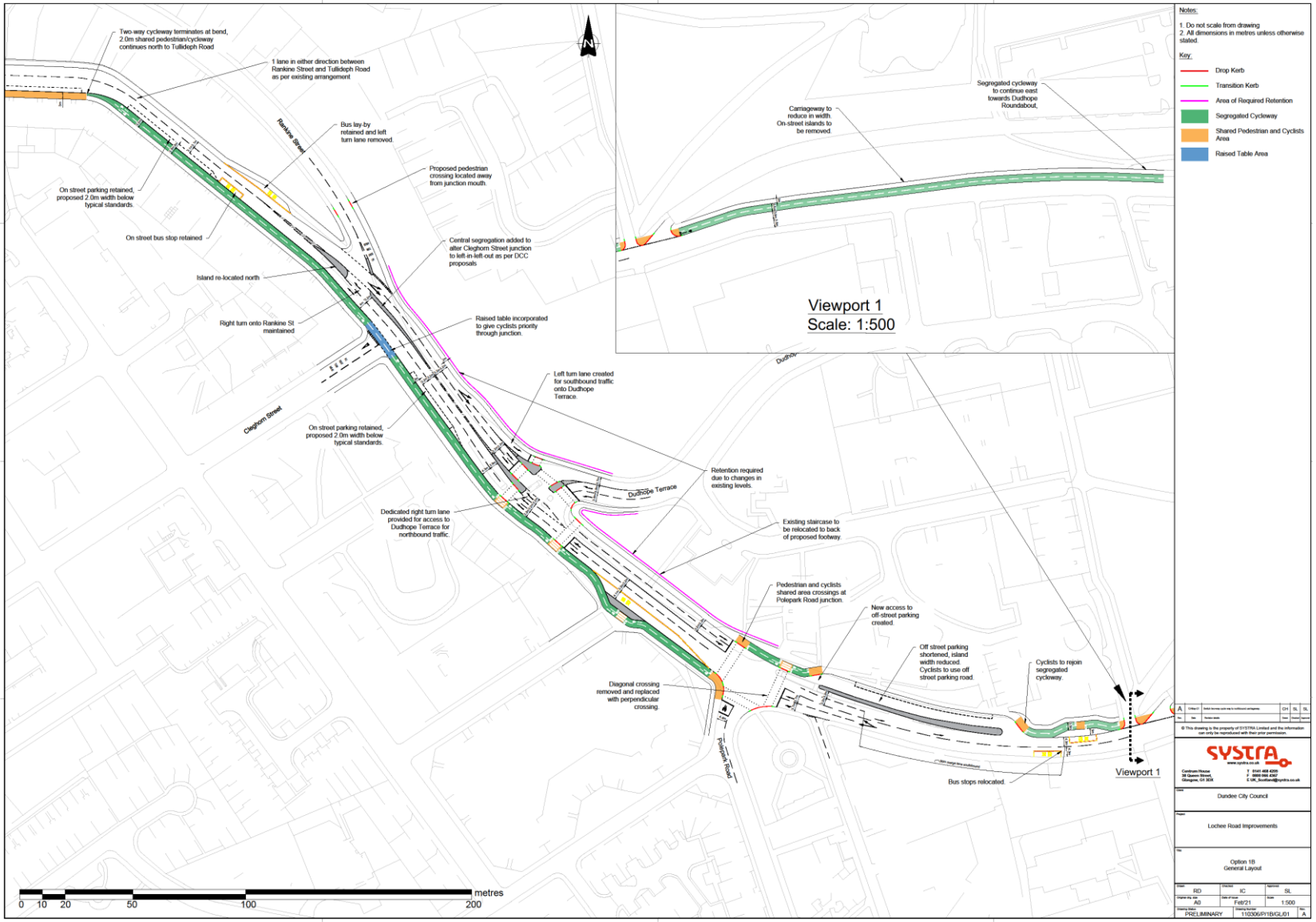
EM/EG/KM 9 June 2021

APPENDIX 1 – OPTION 2 JUNCTION WIDENING



APPENDIX 2 – OPTION 3 DUAL CARRIAGEWAY