

## Future of the Army and Navy Flyover

**Forward Plan reference number:** FP/528/09/19

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| <b>Report title:</b> Future of the Army and Navy Flyover                                                                                                                    |                      |
| <b>Report to:</b> Councillor Kevin Bentley, Deputy Leader and Cabinet Member for Infrastructure                                                                             |                      |
| <b>Report author:</b> Andrew Cook, Director, Highways and Transportation                                                                                                    |                      |
| <b>Date:</b> 1 October 2019                                                                                                                                                 | <b>For:</b> Decision |
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| <b>County Divisions affected:</b> All Divisions in Chelmsford City                                                                                                          |                      |

### 1. Purpose of Report

- 1.1 Asks the Cabinet Member to decide on the permanent closure of the Army and Navy flyover on safety grounds and to make arrangements for its demolition and removal.
- 1.2 To provide information on the work to develop a plan for the future of the Army and Navy junction.

### 2. Recommendations

- 2.1 Agree that the flyover be permanently closed.
- 2.2 Authorise the Director, Highways and Transportation to procure a contract for the demolition and removal of the flyover subject to compliance with any requirement for planning permission/an environmental statement
- 2.3 Note the creation of the task force to consider the future of the junction.

### 3. Summary of issue

- 3.1 The Army and Navy Flyover is a well-known structure in Chelmsford. It is a single lane flyover carrying traffic above the roundabout at the junction of the A138, A1060, A1114, B1009. The flyover is supported on steel trestles.
- 3.2 The flyover, which was a new construction in 1978, has in recent years exhibited movements related to thermal effects which required intervention in 2018 and most recently in July 2019.
- 3.3 During the recent movement in July 2019, upward movement of the northern columns at trestles 6 and 7 was identified along with lateral movement of the northern column of trestle 8 and failure of the holding down bolts. These defects

are similar in type and severity as the defects identified in 2018. In addition, cracking of the reinforced concrete column upstands has been identified.

- 3.4 The structure has therefore been closed on safety grounds. While it is not considered an imminent danger such as to require closure of the roads underneath, it is considered that there is a safety risk in allowing vehicles to use the flyover and it has been closed to traffic.
- 3.5 As is well known, that the structure was introduced as a temporary structure in 1978 and the temporary nature of the structure is perhaps best evidenced by the design details of the bearing arrangements and the detailing of the lightly reinforced concrete upstands, which support the columns. It should be noted that the long term need to replace the flyover had already been identified and the Council is looking to design and implement a new Chelmsford transport strategy which would have reviewed the future of the flyover. While we do not yet know what the strategy will be, it is unlikely to include the temporary flyover given its temporary construction.

### **Current condition**

- 3.6 The deterioration of the bearing arrangements are the cause of the current problems that the structure is exhibiting. It is impossible to maintain and repair deterioration of the beams which are supported by the bearings without lifting and replacing each span in place. Given the 25 year design life of the structure, it had been designed not to require maintenance during that period.
- 3.7 Moreover the cyclic warming/cooling of ambient temperatures during the day appear to be causing several of the concrete upstands to exhibit cracks caused by the movement of the trestle supports. The upstands which support each column are very lightly reinforced and were not designed for the thermal induced uplift forces and shears that they are currently being subjected to.
- 3.8 Other elements of the structure - parapets, thrust pads and joints - are also in a poor condition and would require investment to maintain the safe use of the flyover in the longer term.
- 3.9 Without significant investment the Army and Navy Flyover cannot safely be reopened to traffic. Its current condition means that its behaviour, particularly in hot weather, is unpredictable.
- 3.10 We could repair the flyover but the view of officers is that while this would make it safe in the short term, the behaviour of the flyover would remain unpredictable, particularly during high temperatures.

### **Junction Issues**

- 3.11 Alongside the structural issues with the flyover, the Army and Navy junction experiences high levels of congestion at busy times. It sees 60,000 vehicles per day using the interchange, with 10,000 of these vehicles using the tidal flyover.

- 3.12 Given the importance of the interchange in serving the City of Chelmsford with infrastructure required to be able to cope with future levels of growth, a special Taskforce Panel has been established which has a vision to create ‘a long-term solution for the Army and Navy Roundabout which leads to improved traffic and increased people throughput in the area in the future’.
- 3.13 The project looking at long term options for the junction is currently working through the DfT appraisal process for a Strategic Outline Business Case (SOBC). Following identification of the problems, a long list of options was developed, which has been sifted to a shorter list of 8 broad options which are being assessed in more detail.
- 3.14 It is expected that a SOBC will be submitted to DfT in December 2020 with an Outline Business Case following in Spring 2021. Subject to funding, resolution of any land issues, negotiation with utilities, planning permission and the procurement of a suitable contractor it is then expected that a Final Business Case and construction could commence in 2023. While we will seek to progress this as quickly as we can, we need to provide the best solution and the County Council is not in the position to control the resolution of a number of these issues, meaning that it cannot guarantee that there will be no slippage..

#### 4. Options

- 4.1 Following the identification of movement at the flyover during July, two reports have been prepared in order to appraise Essex County Council of the issues and to offer recommendation on what course of action to take.
- 4.2 The table below summarises the options considered and includes estimated costs which should be considered indicative.

| No. | Description                                                                                                     | Comments                                                                                                                                                                                                                                                                                                                               |
|-----|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1A  | Flyover remains closed until such time as the wider Chelmsford transport strategy determine the future solution | While this would be quick and easy to implement, this option does not resolve the existing instability of the structure and does not seek to replace the lost capacity quickly. This option could still result in the flyover being demolished, but at some future time.<br><br>Estimated Cost: Negligible<br>Time to implement: None. |
| 1B  | <b>Flyover permanently close and removed.</b>                                                                   | <b>This option is recommended since it offers opportunity to improve traffic flows in the area in the longer term. It removes the maintenance liability and offers some programme savings on future work at the junction.</b>                                                                                                          |

| No. | Description                                                                                   | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | <b>Longer term options developed</b>                                                          | <b>Estimated Cost: £380k</b><br><b>Estimated Design Programme: 13 weeks</b><br><b>Estimated Total Programme: 27 weeks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2a  | Initial fixing of defects to enable reopening of flyover                                      | <p>While this would be the quickest way of replacing capacity, we cannot be confident that the repaired structure would be resilient. These repairs do not tackle the root cause of the problem and it is considered entirely possible that the structure would again be taken out of service during the summer 2020.</p> <p>Estimated Cost: £152k</p> <p>Estimated Design Programme: 9 weeks</p> <p>Estimated Total Programme: 17 weeks</p>                                                                                                                                                                                                                                                                                                                   |
| 2b  | Initial fixing of defects to enable reopening of flyover with HD bolt replacement.            | <p>This option offers greater resilience than 2a, but does not offer complete confidence in structural resilience, it is considered that the structure would again be taken out of service during the summer 2020 as it did not address the root cause of the movement defects.</p> <p>Estimated Cost: £288k</p> <p>Estimated Design Programme: 13 weeks</p> <p>Estimated Total Programme: 21 weeks</p>                                                                                                                                                                                                                                                                                                                                                        |
| 3   | Replacement of bearings and deck ends to address root cause of issue, plus major maintenance. | <p>While this option does offer confidence in structural resilience, it is a major intervention requiring many months to plan. It is believed that this would take 18 months to design and implement.</p> <p>As part of the Chelmsford transport strategy the County Council is working with its partners to consider the long term future of the junction. There is a risk that future plans for this junction would not include a flyover, meaning that the repaired flyover could be taken out of use after two years' use. Considerable round the clock disruption during the 39 week estimated construction period.</p> <p>Estimated Cost: £1.5 to 1.8 million</p> <p>Estimated Design Programme: 39 weeks</p> <p>Estimated Total Programme: 79 weeks</p> |
| 4   | Deck replacement                                                                              | <p>While this option does offer confidence in structural resilience, it is a major intervention requiring many months in the planning. It is believed that the programme length would be two years, creating the same issues as with option 3. This would require</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| No. | Description | Comments                                                                                                                                                                                                                      |
|-----|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |             | <p>considerable night time disruption during the 38 week estimated construction period.</p> <p>Estimated Cost: £1.3 to 1.6 million</p> <p>Estimated Design Programme: 38 weeks</p> <p>Estimated Total Programme: 92 weeks</p> |

4.3 Option 1B, 'Flyover remains closed. Flyover removed', is recommended. It is considered that options short of the major refurbishment or deck replacement that are options three and four fail to offer reliable and safe use of the flyover. The length of programme to deliver the options three or four is considerable and would only offer between one and two years of use of the flyover before it is taken out to accommodate the junction remodelling that is likely through the work of the Army and Navy taskforce.

4.4 In view of these factors, the removal of the flyover under option 1B offers a solution to the current safety issues with the flyover and would enable a change in use of the islands approaching the junction where the flyover ramps are currently. These areas could be used to improve capacity on the approaches.

4.5 In the meantime efforts have been made to relieve congestion at the junction. Amongst others, the following measures are currently in place;

- Enhancing bus services
- Reaching out to schools to establish improvements in drop off/collection
- Advance signing warning motorists to find alternative routes/use park and ride
- Enhancing signal timings
- Encouraging sustainable modes of transport

4.6 Additional measures are being proposed and reviewed as well as monitoring and active intervention of the highway network in the vicinity in the peak hours.

## 5. Next Steps

5.1 Following agreement of the option, the work should be designed and procured. During this period the programme for the work should be agreed with stakeholders.

5.2 If option 1B is selected and the decision taken to remove the flyover, efforts should begin quickly to identify specialist contractors in order to tender for the work.

- The flyover and junction are of great interest to the public and attract significant media attention. An ongoing communication strategy should be developed to cater for the work demolition phase, informing the public of the stages and disruption that can be expected.
- The process of removing the flyover should be planned carefully and efforts made to limit disruption to off peak hours.
- Land should be identified for the breaking up of the flyover a short distance from the flyover.
- It is known that birds sometimes nest within the structure, if work does not commence before bird nesting season, measures should be introduced to limit potential for nesting on the structure.
- Work done to date has not considered the removal of the signing infrastructure, ducting, electrical supplies etc. It does however consider the removal of the gantries.
- The work and budget required to modify the ramp island areas to accommodate additional traffic lanes has not been considered.
- The current 20mph traffic order on the flyover would need to be revoked.

## **6. Issues for consideration**

### **6.1 Financial implications**

6.1.1 The cost of the recommended option 1B, Flyover remains closed, flyover removed, is estimated at £380,000

6.1.2 Demolition costs were not provided for when the asset was initially capitalised and therefore there is no current provision for funding these works.

6.1.3 To the extent the works are capital they would be funded from borrowing, redirecting existing funded capital allocations. The anticipated duration of the design and works would require the cost to span 2019/20 and 2020/21 financial year. The approved Highways Maintenance capital programme for 2019/20 totals £75m and the indicative 2020/21 maintenance budget totals £71.8m which could be re-prioritised to accommodate the £380,000 anticipated cost.

6.1.4 To the extent that the works are revenue in nature the costs would be contained within the existing budgetary envelop within Highways and Transportation which totals £49.4m in 2019/20 and is anticipated to be in the region of £46m in 2020/21.

### **6.2 Legal implications**

6.2.1 The Council has a duty to maintain a safe highway network and if the flyover cannot be made safe then it must be removed.

6.2.2 The cost of demolition exceeds the threshold in the Public Contracts Regulations 2015 but will be procured via the highways strategic partnership contract meaning that Ringway Jacobs Limited will need to demonstrate that

the proposed sub contractor has been procured in a way which demonstrates value for money.

6.2.3 There will be a Traffic Regulation Order required to revoke the current 20 miles per hour speed limit for the flyover. This will be advertised under delegated powers and if there are any objections to the proposed order then the matter will be reported to the Cabinet Member.

## **7. Equality and Diversity implications**

7.1 The Public Sector Equality Duty applies to the Council when it makes decisions. The duty requires us to have regard to the need to:

- (a) Eliminate unlawful discrimination, harassment and victimisation and other behaviour prohibited by the Act. In summary, the Act makes discrimination etc. on the grounds of a protected characteristic unlawful
- (b) Advance equality of opportunity between people who share a protected characteristic and those who do not.
- (c) Foster good relations between people who share a protected characteristic and those who do not including tackling prejudice and promoting understanding.

7.2 The protected characteristics are age, disability, gender reassignment, pregnancy and maternity, marriage and civil partnership, race, religion or belief, gender, and sexual orientation. The Act states that 'marriage and civil partnership' is not a relevant protected characteristic for (b) or (c) although it is relevant for (a).

7.3 The equality impact assessment indicates that the proposals in this report will not have a disproportionately adverse impact on any people with a particular characteristic.

## **8. List of Appendices**

Equality impact assessment

## **9. List of background papers**

- Interim Measures – 28/08/2019
- Future of the Army and Navy Flyover – 6/09/2019

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|-------------------------------------------------------------------------------------------------|-----------------|
| <b>I approve the above recommendations set out above for the reasons set out in the report.</b> | <b>Date</b>     |
| <b>Councillor Kevin Bentley, Deputy Leader and Cabinet Member for Infrastructure</b>            | 22 October 2019 |

**In consultation with:**

| <b>Role</b>                                                                                                                                                         | <b>Date</b>             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <b>Director, Highways and Transportation</b><br><br><b>Andrew Cook</b>                                                                                              | 27<br>September<br>2019 |
| <b>Director, Legal and Assurance (Monitoring Officer)</b><br><br><b>Paul Turner</b>                                                                                 | 27<br>September<br>2019 |
| <b>Executive Director, Finance and Technology (Section 151 Officer) delegated to Director of Finance</b><br><br><b>Stephanie Mitchener on behalf of Nicole Wood</b> | 21<br>October<br>2019   |
| <b>Head of Network, Safety and Asset Management, Network, Safety and Asset Management</b><br><br><b>Liz Burr</b>                                                    | 27<br>September<br>2019 |
| <b>Head of Design</b><br><br><b>Vicky Presland</b>                                                                                                                  | 27<br>September<br>2019 |