Smart Transport Evolution Programme (STEP) – Data Platform

Summary

1. In March 2018 CoYC was awarded a £2.845M grant from the National Productivity Investment Fund (NPIF) to carry out the Smart Transport Evolution Programme (STEP).

2. A fundamental part of this programme is to deliver a Transport Data Platform that will be a repository and integration hub used for the collection, aggregation, storage, dissemination and visualisation of traffic and transport data.

3. The STEP Data Platform will supply a newly deployed real-time traffic model that forecasts 5-60 minutes ahead and can produce alerts for Network Monitoring Officers to make pre-emptive traffic interventions. Citywide real-time traffic modelling with the STEP level of detail is a UK first.

4. Having the ability to forecast near-future traffic conditions and make pre-emptive traffic interventions will improve the overall efficiency of the road network, resulting in a greater ability to prioritise road space for users in line with the Council's Road User Hierarchy. This can include improved bus service schedule adherence, due to the fact that we can start to resolve issues that affect public transport services at an earlier point in time than at present.

5. A procurement exercise has been carried out and bids have been received within the £400-550K budget allocated in the programme.

6. This report updates the Member for Transport on the work done with the grant so far and requests approval to commission the STEP Transport Data Platform.

Recommendations

7.   The Executive Member is asked to:

Approve Option 1

Note STEP progress to date and approve the commissioning of the STEP Data Platform so the procurement may be completed under officer delegated authority.

8.   Reasons:

- Commissioning the STEP Data Platform will allow CoYC to fulfil the grant funding conditions.

- A Transport Data Platform Prototype has proven the concept and technical integrations work, removing a lot of technical risk.

- A Procurement exercise has been carried out so contract costs are known.

- A feed of live transport Data from the Prototype has been used by the Government to track COVID travel patterns and has positively raised the profile of CoYC.

- The STEP Data Platform requires a robust industrial solution to ensure future support and reliability not supported with the Prototype.

Background

9.   In March 2018 CoYC was awarded £2.845M in National Productivity Investment Fund (NPIF) grant funding to carry out the Smart Transport Evolution Programme (STEP). The Department For Transport (DfT) are the sponsor and provide governance on grant conditions being met.

10. The STEP programme aims to deliver monitoring and analytical capability for real-time journey analysis and modelling across York, and allow York to prepare for advances in urban travel such as Connected and Autonomous Vehicles.

11. Since award, using the grant funding, the programme has:

- Upgraded fibre and wireless communications at 40 sites including traffic signals and Variable Message Signs (VMS),

- Upgraded 10 more traffic signal controllers to allow Network Monitoring Officers (NMOs) to manage the signals on Urban Traffic Control (UTC).

- Upgraded a third of the City's Automatic Traffic Counters (ATCs) to report back vehicle data in real-time.

- Built a Prototype Transport Data Platform as proof of concept.

- Collected trips data from Road Side Interviews and aggregated information from mobile phone operators to build a baseline of trips made.

- Recently delivered a new strategic transport model which can now be used for central government compliant transport assessments.

- Deployed a real-time traffic model that forecasts 5-60 minutes ahead which can produce alerts for Network Monitoring Officers to make pre-emptive interventions.

- Supported STEM events engaging young people in York with science, technology, engineering and maths.

- The programme will shortly be delivering a Green Light Optimal Speed Advisory trial to the A59 and A1079, a service that sends real-time and future traffic signals conditions into smart phones and cars and advice of the most efficient speed to travel safely to get through on green.

12. In 2017 CoYC engaged with a transport systems integrating consultant to build a transport data repository. Originally built to support the CoYC Eboracum project, collecting journey time and flow data, it has been retained to prototype the ingestion and aggregation of different types of data required for STEP.

13. As the prototype was commissioned for the purposes of testing integrations and proof of concepts it is not supportable in a commercial or industrialised sense. If a replacement robust solution is not

implemented, the prototype will need to be turned off as it is not suitable for long term adoption.

14. Based on lessons learned from the prototype and incorporating industry best practice, a thorough technical specification was written and reviewed by stakeholders.

15. Key principles of design for the STEP Data Platform are scalability and flexibility so that future and unknown datatypes can easily be integrated such as air quality, cycle data, Connected and Autonomous Vehicle data, bus locations etc.

16. The approach chosen is 'Software as a Service' where an expert supplier will manage all technical aspects of running and updating the STEP Data Platform under tight Service Level Agreements.

17. The specification was put to market for a 7 year contract under the Open Tender procurement process.

18. Nine bids were received in total. In order to complete the award process a decision is required to commit funds from the STEP budget within the range of £400-£550K. The STEP budget has the funds available.

Consultation

19. No public consultation has been held due to the extremely technical nature of the project.

20. Consultation with the Department for Transport has been carried out to ensure the project is on track and Data Platform proposals reflect their expectations from the grant funding.

21. Internal consultation has been held with appropriate stakeholders to ensure the systems and services implemented by the Data Platform are within legal and corporate expectations.

22. Summary of Consultees: The Department for Transport, Transport Board, Transport Systems Team, ICT Board, ICT Security, Business Intelligence, Legal Team, Procurement Team.

Options

23. **Option 1 – Commission the STEP Data Platform**

24. If this Option is chosen a contractor will be appointed from the procurement exercise and work will begin migrating from the Prototype Data Platform to an industrialised STEP Data Platform, supported for 7 years.

25. **Option 2 – Do not commission the STEP Data Platform**

26. As per conditions in the grant funding, the funds cannot be used within other CoYC transport projects. A report would be written to the DfT explaining that the funds could not be spent. Use of the Prototype Data platform would be terminated at the end of the calendar year.

Analysis

27. **Option 1 – Commission the STEP Transport Data Platform**

28. Estimated Capital Cost: £400-550k.

29. Estimated Revenue Cost: Covered in above capital costs for the seven year contract period.

30. Advantages
    - Provides a robust Data Platform that will leverage best use out of the new real-time traffic model and value from the Prototype.

    - Provides a fully supported transport data hub that unlocks siloed data from new and legacy systems that can then be shared with the public and 3rd parties via York Open Data and the National Access Platform.

    - Gives CoYC a scalable and flexible platform for integrating with future transports data sources, such Connected and Autonomous Vehicles.

    - The costs are fully covered by the NPIF grant funding, not from CoYC funding.

- Live feeds from the Prototype have already been warmly received by the government, commissioning the long term solutions puts CoYC in good stead for future such collaboration.

- Work can start quickly as much of the procurement work is already completed.

- Delivery will be expedient as learning from the Prototype has reduced much of the technical integration risk.

31. Disadvantages

- There is an ongoing revenue implication after the 7 year grant funded contract expires that would need sourcing should the STEP Data Platform be continued past this point.

32. **Option 2 – Do not commission the Transport Data Platform**

33. Estimated Capital Cost: None.

34. Estimated Revenue Cost: None.

35. Advantages

- None

36. Disadvantages
- The recently implemented real-time traffic model would lose much of its accuracy when the prototype is turned off.

- The grant funding sponsor (DfT) will be disappointed that a key element of the programme is not delivered and may wish for funding to be returned.

- The Council would be less prepared to support future digital transport systems such as connected and autonomous vehicles.

37. **Options already discounted**

Running the Transport Data Platform in-house has been discounted. Engaging with the stakeholders most capable of carrying out such work, ICT and Business Intelligence (BI) they have stated there is no

internal capacity or specific technical skills for STEP Data Platform core services in the short to mid-term.

Council Plan

38. Getting around sustainably

   The Transport Data Platform provides a central hub that can collect, process and visualise data so that CoYC traffic engineers can implement more informed changes. Further metrics will be available including but not limited to journey times, delays, estimated emissions and traffic volumes which will help the council monitor progress in this area of the council plan.

39. An open and effective council

   The Transport Data Platform unlocks traffic data from sources around the city and allows the Council to publish new data sources to the York Open Data Platform and central Government National Access Platform where the public and third parties can view and download it.

Implications

40. **Financial**
   The funds to build and support the STEP Data Platform will be entirely allocated from the NPIF Grant. All costs including project management fees, Officer time, equipment, cloud hosting and contractor costs are funded from the grant. CoYC match contributions to the grant award have already been applied in other areas of the STEP programme.

41. **Human Resources (HR)**
   There are no Human Resources implications.

42. **One Planet Council / Equalities**
   There are no Equalities implications.

43. **Legal**
   CoYC Legal have reviewed the STEP Data Platform requirements and created an appropriate contract to be issued to an appointed provider.

   The tender process to identify suitable candidates was carried out via an open tender procedure and governed by CoYC Procurement.

44. **Crime and Disorder**
    There are no Crime and Disorder implications.

45. **Information Technology (IT)**
    ICT and Business Intelligence are a key stakeholders in the commissioning of the STEP Data Platform, to this end they have been engaged throughout the scoping and procurement activities to date.

    As the STEP Data Platform will be supported as a service by a third party provider, ongoing impact on ICT is expected to be minimal. Any costs for future support from ICT is being reviewed and it's anticipated the grant funding would cover this.

46. **Property**
    There are no Property implications.

47. **Transport**
    CoYC Transport teams are already benefitting from the outputs under STEP to date. Implementing the new STEP Data Platform will enrich the information available to officers but will require knowledge on how to use the system and interoperate the data correctly. Training for Transport officers on how to use the Data Platform is included with the tender submissions.

Risk Management

48. There is a risk that the commission could take longer than anticipated as there are some complex integrations between systems. STEP has a dedicated Agile & PRINCE2 trained project manager and weekly meetings with the successful contractor will be held to track progress and resolve issues. The successful deployment of the Prototype has removed much of the risk and code will be shared with the incumbent supplier.

49. As with all projects, costs are a variable that must be controlled. A tender process has already been carried out to remove the risk of erroneous estimates and as such, costs for the commission by each potential supplier are known. The appointed contractor for the Data Platform will be under contract to deliver to cost.

50. Project risks are recorded within the project risk register and managed by the project team.

Contact Details

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Report Approved	√	**Date**	28.04.21

Specialist Implications Officer(s) List information for all
N/A

Wards Affected: List wards or tick box to indicate all   **All** [　　　]

For further information please contact the author of the report

Background Papers:

All relevant background papers must be listed here.

Annexes

Annex A – Bid documentation for the Smart Transport Evolution Programme funding:
https://www.york.gov.uk/downloads/download/35/smart-travel-evolution-programme-step

Annex B – Notification of STEP award at Exec Decision session 15th March 2018 - https://democracy.york.gov.uk/documents/s121935/Report%20-%20Final%20Capital%20Programme%20Budget.pdf

List of Abbreviations Used in this Report

ATC – Automatic Traffic Counter(s)
CoYC – City of York Council
DfT – Department for Transport
ICT – The Councils Information Computing and Technology department

NMO – Network Monitoring Officer
NPIF – National Productivity Investment Fund
STEP – Smart Transport Evolution Programme
UTC – Urban Traffic Control
VAS – Variable Message Sign(s)