A120/A133 Link Road
Options Technical Note
June 2019
1 Introduction

Essex Highways has been commissioned by Essex County Council (ECC) to undertake Design Stage 1 (Problem Identification) and Stage 2 (Scheme Identification) for the A120/A133 Link Road and RTS scheme and this note provides short a summary on the sifting of the initial options for the A120/A133 Link Road.

1.1 Options Review

The A120/A133 Link Road is an element of the Housing Infrastructure Funding bid that was submitted on 22 March 2019. In addition to the Link Road the bid included a Rapid Transit System (RTS).

The Link Road is over 2 km long and runs from the A133 in the south to the A120 in the north. The HIF indicated a single layout as an indicative option. A number of alignment options have been generated and this report summarises the optioneering carried out to date with the aim of selecting viable options that can be developed further and put to the local communities and stakeholders for their feedback.

This document provides a tabular overview of the advantages and disadvantages of each option and assess their viability against a set of criteria. Two of out four options are recommended to be taken forward. Details of the four options are provided in Section 2 of this report.

The table provides high level assessment against a number of areas, generally broken down into:

- General
- Connectivity
- Land Take
- Environment, and a list of constraints

This is not intended to be an exhaustive list and it is only intended to capture the headline items currently identified for each option. The detailed review of Options 1-3 and their variants will be documented in the Stage 2 Technical Report. Option 4 was discounted at the Stage 1 Initial Sifting Note stage.
2 Option Descriptions

2.1 Four Options

**Option 1:** This option is broadly the one that was indicated on the HIF bid. Four variants of this option were drawn up with the location of the new A120 grade separated junction in the north being the significant difference between the four variants. This option is approximately 2.1km.

The main features of this option are:

- Grade separated ‘dumb-bell’ junction with A120 located east of the Trunk Road Service Area (TRSA) and Waste Transfer Station (WTS).
- At-grade roundabout junction with the A133 east or west of Blossomwood Cottages.
- Dual two-lane link road, 85kph design speed
- Provision of new access roads to TRSA and WTS
- Roughly north/south alignment, along the eastern edge of the Garden Community site.

**Option 2:** This is the most easterly option. Three variants of this option have been considered. Options 2A and 2B are approximately 2.6km whilst Option 2C is 2.1km.

The main features of this option are:

- Grade separated ‘dumb-bell’ junction with A120 with 1km weaving length to retained TRSA and WTS at-grade accesses.
- At-grade roundabout junction with the A133, with three potential locations.
- Dual two-lane link road, 85kph design speed
- A120 junction located just north of St Anne and St Lawrence’s Church and Elmstead Hall.
- The variants pass either side of the lake but all are to the east of Allen’s Farm.

**Option 3:** Similar to Option 1, roughly north/south but veering westward at the northern end. This option is approximately 2.4km.

The main features of this option are:

- Grade separated ‘dumb-bell’ junction with A120 located west of the Trunk Road Service Area (TRSA) and Waste Transfer Station (WTS) utilising the existing location of the Bromley Road overbridge which would be removed and replaced on a different alignment.
- At-grade roundabout junction with the A133 west of Blossomwood Cottages.
- Dual two-lane link road, 85kph design speed
- Links to Bromley Road from A120 junction ‘dumb-bell’
- Current access/egress to TRSA closed and replaced with a new access road via a proposed Link Road intermediate roundabout.
- Access to WTS closed – new access off Bromley Road.

**Option 4:** This is the most westerly option. This option is also the longest at approximately 2.9 km.

The main features of this option are:

- Grade separated ‘dumb-bell’ junction with A120 located west of the Trunk Road Service Area (TRSA) and Waste Transfer Station (WTS) utilising the existing position of the Springvalley Lane overbridge which would be removed and replaced on a different alignment.
- At-grade roundabout junction with the A133 west of Blossomwood Cottages
- Dual two-lane link road, 85kph design speed
- Additional roundabout junction with Bromley Road is required and the link to the TRSA also provided off this roundabout.
- Existing TRSA merge and WTS diverge removed. Access to WTS off Bromley Road.

3 Function of Road

3.1 Function of Road

In deciding how the Link Road is to be designed and how it will operate it is necessary to determine what the function of the road is. This is our current understanding:

- To facilitate the development and growth and serve as the primary highway access to the Garden Community, providing connectivity with the local as well as strategic road network. It will function alongside the RTS to allow the movement of people into and out of the site.
- To act as a link road between the A120 and A133 and reduce congestion on these two roads, including maintaining traffic flows on the A120 below saturation limits following the TCBGC development.
- Be a dual 2-lane carriageway to accommodate the design traffic flows, and be subject to a 50mph speed limit.
## 4 High Level Assessment

<table>
<thead>
<tr>
<th>Option 1 (2.1km)</th>
<th>Option 2 (2.1km to 2.6km)</th>
<th>Option 3 (2.4km)</th>
<th>Option 4 (2.9km)</th>
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<tbody>
<tr>
<td><strong>General</strong></td>
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<tr>
<td><strong>Advantages:</strong></td>
<td>Shortest route</td>
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<td></td>
<td>North/South alignment (desire lines)</td>
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<td></td>
<td>In combination with closure of the existing A120 at-grade accesses removes existing conflict points from the dual carriageway.</td>
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<td></td>
<td>Would form the eastern boundary to the residential area and a divide between the residential area (in the west) and the employment area/potential P&amp;R/C (in the east)</td>
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<td></td>
<td>Most variants avoid the existing Bromley Road and accommodation/PRoW overbridges.</td>
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<tr>
<td><strong>Disadvantages:</strong></td>
<td>Possible buildability issue requiring diversion of overhead HV cable/ pylons</td>
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<td>Risk associated with objection to closure of existing slip roads.</td>
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<td>Options 2A and 2B are longer than Options 1 and 3.</td>
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<td>The accommodation and PRoW overbridge will need to be demolished, and if it cannot be installed in the same location (routes to it would be severed) with a bigger span, PRoW users and agricultural vehicles will need to be diverted to and around the new junction.</td>
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<td></td>
<td>Allows retention of at-grade accesses on A120.</td>
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<td><strong>Connectivity</strong></td>
<td>Provides connectivity between residential and industrial areas but allows separate connections to these areas</td>
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<td></td>
<td>Provides improved access and connectivity (in and out) to TRSA and WTS via new access roads</td>
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<td>Will facilitate access to Allen’s Farm.</td>
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<td><strong>Disadvantages:</strong></td>
<td>Loss of direct access from A120 to TRSA (passing trade)</td>
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<td></td>
<td>May require land from WTS, to lie in slip roads prior to Bromley Road bridge</td>
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<td>Central A133 roundabout position leads to private residential access on approach to roundabout, giving an increased collision risk</td>
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<td>Option 1A results in loss of A133 lay-by</td>
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<td><strong>Advantages:</strong></td>
<td>Provides the desired connectivity between the Link Road and the Garden Community’s allocated residential and industrial areas. The side roads off the Link Road will be a significant length before they reach the development.</td>
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<td>Traffic travelling from the A12 will have to use the A120 for longer.</td>
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<td><strong>Disadvantages:</strong></td>
<td>TRSA could stay open in current location.</td>
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<td>Bromley Road connection with A120 opens up opportunities.</td>
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<td>Does not provide the desired connectivity between allocated residential and industrial areas – may require masterplan concept framework to be altered.</td>
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<td></td>
<td>Loss of direct access from A120 to TRSA (passing trade)</td>
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<td>Traffic from WTS may be required to use the local road network</td>
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<td>Wheatsheaf House would require new access</td>
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<td>Extra infrastructure required to connect Bromley Road which would be significantly impacted during construction.</td>
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<tr>
<td><strong>Advantages:</strong></td>
<td>All of the land take is within TCBGC boundary except that required to the north of the A120</td>
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<tr>
<td><strong>Disadvantages:</strong></td>
<td>Large proportion of required land is outside TCBGC site boundary, leading to potentially lower likelihood of current owner acceptance of acquisition.</td>
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<tr>
<td></td>
<td>All of the land take is within TCBGC boundary except that required to the north of the A120 and for the westbound merge.</td>
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<td></td>
<td>Northern section of Link Road and A120 merges and diverges will be outside the TCBGC boundary. Would have severe impact on a number of residential properties and CPO of the properties affected may be difficult.</td>
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</table>
- The route encroaches into some sections allocated to residential occupation
- Additional land take required to cater for new access for TRSA (inside boundary) and WTS (outside boundary).

### Advantages:
- Located well away from St Anne and St Laurence Church, Elmstead Hall, and Elmstead Market village.
- Few existing air quality and noise receptors and least direct impact to known sensitive receptors at this stage.
- Majority of route is at low risk of surface water flooding and groundwater flooding.
- Intersects only one PROW.
- Shorter route, so potentially less material use and waste generated.

### Disadvantages:
- Affects potential large number of sensitive air quality and noise receptors on both sides of the link road.
- Option 1A results in the loss of Strawberry Grove wooded area.
- Multiple ponds within 250m which may provide breeding opportunities for protected species Great Crested Newts.
- Visual effect on views for receptors east of the proposed route, such as Allen’s Farm which has open, direct views towards the proposed road, as well as a small number of dwellings along existing roads which are near the proposed route.
- Potential effect on the setting of 250m west of Grade II listed Allen’s Farmhouse through noise and visual intrusion during construction and operation.
- Slip roads will be adjacent to petrol station and waste transfer station. There may be potential for unknown areas of infilled land surrounding this site.

### Environment

<table>
<thead>
<tr>
<th>Environment</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Listed Buildings:</td>
<td>Listed Buildings:</td>
<td>Listed Buildings:</td>
<td>Listed Buildings:</td>
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<tr>
<td></td>
<td>1. Grade II Listed Allen’s Farmhouse</td>
<td>1. Grade I Listed Church of St Anne and St Laurence</td>
<td>None</td>
<td>1. Grade II Listed Moze Hall</td>
</tr>
<tr>
<td></td>
<td>Other Properties:</td>
<td>2. Grade II* Listed Elmstead Hall</td>
<td>Other Properties:</td>
<td>2. Grade II Listed Spring Valley Mill</td>
</tr>
<tr>
<td></td>
<td>3. Blossomwood Cottages</td>
<td></td>
<td>3. Turnip Lodge Cottages</td>
<td></td>
</tr>
</tbody>
</table>
4. Blossomwood Farm
   Business’s and other operational sites:
   1. Allen’s Farm
   2. Ardeleigh South A120 Trunk Road Service Area
   3. ECC Waste Transfer Station
   Strawberry Grove and other small areas of Woodland
   Existing highways and Public Rights of Way (PRoW) across the site.
   Utilities
   1. Overhead lines mounted on pylons
   2. Asbestos concrete water main
   3. Overhead and underground UKPN and BT Openreach cables.

4. Blossomwood Cottages
   Existing highways and Public Rights of Way (PRoW) across the site.
   Utilities
   1. Overhead lines mounted on pylons
   2. Asbestos concrete water main
   3. Overhead and underground UKPN and BT Openreach cables.

4. Blossomwood Cottages
   Existing highways and Public Rights of Way (PRoW) across the site.
   Utilities
   1. Overhead lines mounted on pylons
   2. Asbestos concrete water main
   3. Overhead and underground UKPN and BT Openreach cables.

Other Properties:
1. Blossomwood Cottages
2. Blossomwood Farm
3. Brook Cottages
4. Balls Farm
5. Friars Hall Cottages
Small areas of Woodland.
Lake (former sand and gravel extraction pit)
Existing highways and Public Rights of Way (PRoW) across the site.
Utilities
1. Asbestos concrete water main
2. Overhead and underground UKPN and BT Openreach cables.

Other Properties:
1. Wheatsheaf House
2. Mount Pleasant
3. Turnip Lodge Cottages
4. Blossomwood Cottages
5. The Bungalow
6. Melmillo
7. Crockleford Hall
8. Jubilee Cottages
9. Hull Farm Cottage
Areas of Woodland.
Existing highways and Public Rights of Way (PRoW) across the site.
Utilities
1. Overhead lines mounted on pylons
2. Asbestos concrete water main
3. Overhead and underground UKPN and BT Openreach cables.
4. Gas in far NW of site near railway line
5 Conclusion

5.1 Conclusion

Options 2 and 4 do not adequately meet the objectives for the function of the road, and their large number of disadvantages generally, mean it is not proposed that they are taken forward. Options 1 and 3 broadly meet the objectives and have sufficient advantages to be taken forward. This is summarised below.

Option 2 – these routes are too remote from the Garden Community site, and Option 2A aside, the routes and the connections from the Link Road to the development would all require majority land take from areas outside the boundary, and potentially sterilise land in between. The option passes closest to Elmstead Market and a number of sensitive receptors, having a significant, potentially unmitigable impact on important listed buildings.

Option 4 – This option would pass through the core of the site, particularly the northern half and when considering the proposed function of the road, it does not meet that purpose and would create a severance issue. Furthermore as well as being the longest route, this link road would not provide connection to the designated employment and Park and Choose location meaning a further key route would need to be constructed. In addition there is an area the route passes through south of the A120 and north of Bromley Road which has been excluded from the NEGC boundary. There are a number of existing residential properties in this area. Several of the properties would need to be CPO’d or be significantly impacted by the option.

Option 1 - The variants of this option are generally the shortest. They take a smooth alignment from north to south, and form an eastern boundary to the residential part of the Garden Community. There are two workable locations for a roundabout junction with the A133. The variants allow an optimum position to be determined providing if possible minimal impact on Strawberry Grove, the overhead lines and the TRSA and WTS.

Option 3 - This option also takes a smooth alignment from north to south having an impact on a small number of existing properties but no listed buildings. Just the A120 junction is outside the NEGC boundary. It avoids all areas of woodland. The new structure would be constructed close to an existing bridge location and there is the potential to utilise existing infrastructure for connectivity for future development.
Appendix A – Proposed Options plan – B355363A-K-00-001A
Significant impact on a number of properties to the Review'd
Drawn Checked
- Clearance issue to power line
- Pylon located between A120 and slip road
- Low direct impact on Strawberry Grove
- Clearance issue to
- Utilises intermediate
- Long access roads
- Pylon located between
- Small/medium impact on power line roundabout A120 and slip road Strawberry Grove

Op. 4 has not been taken forward because:
· Potential merge/diverge conflict with either railway
· Route well inside NEGC boundary, particularly at the northern end - creates severance issues.

Option 4 - Proposed A120 junction located at the Bromley station so this would need to be mitigated. Access to the Waste Transfer Station would be solely from Bromley Road. The slip road would pass very close to the canopy of the fuel storage tanks. The slip road would need to be realigned to pass through the residential area and waste transfer station. It is also proposed to realign the Bromley Road bridge which would be replaced on a new alignment. Access to Bromley Road would be through the residential area and waste transfer station direct and Choose site, which would not be located close to the NEGC boundary.

Option 3 - Proposed A120 junction located such that the service road will pass close to the canopy of the fuel storage tanks. It is also proposed to realign the Bromley Road bridge which would be replaced on a new alignment. Access to Bromley Road would be through the residential area and waste transfer station direct and Choose site, which would not be located close to the NEGC boundary.

Option 2B - Proposed A120 junction located with slip roads tying in prior to Bromley Road overbridge and avoiding developed part of waste transfer station. Link roads required to service area and waste transfer station and exiting intersection to link roads.

Option 2A - Proposed A120 junction located with slip roads bypassing Bromley Road and avoiding developed part of waste transfer station. Link roads required to service area and waste transfer station and exiting intersection to link roads.

Option 1C - Proposed A120 junction located through the residential area and waste transfer station direct access to site and passing between Allen’s Farm and lake.

Op. 1B - Proposed A120 junction located through the residential area and waste transfer station direct access to site and passing between Allen’s Farm and lake.

Op. 1A - Proposed A120 junction located through the residential area and waste transfer station direct access to site and passing between Allen’s Farm and lake.

Option 3 - Proposed A120/A133 link road

Essex Highways, Seax House, Victoria Road South, Chelmsford, CM1 1QH.

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N.T.S. PRoW PRoW PRoW PRoW PRoW PRoW PRoW PRoW

Transfer Station Waste Transfer Station Transfer Station Waste Transfer Station

Power Lines Power Lines Power Lines Power Lines Power Lines

Proposed A120/A133 link road

Proposed A133 realignment through NEGC boundary. Existing PRoW are retained.

Proposed A133 realignment through NEGC boundary. Existing PRoW are retained.

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