14 NET PRESENT VALUES AND SENSITIVITIES

14.1 Introduction

This section of the OBC calculates Net Present Values (NPVs) for each of the shortlisted options and examines the impact of changes to key assumptions.

14.2 NPV – Base Case

Section 11 of the report examined the estimated end-state monetary costs and benefits for the three shortlisted options. For the purposes of our NPV analysis, we have assumed that:

- Organisational costs and benefits will reach their end state in Year 1 of the NPV analysis; and
- Operational costs and benefits will reach their end state in equal increments over a period of five years.

We have considered NPVs over a time horizon of 25 years (in line with the Treasury Green Book and Northern Ireland Practical Guide), classifying transport operations as commercial activities and therefore using a discount rate of 8% per annum.

Detailed NPV calculations are set out in Appendix 3 for all the options and sensitivities considered. Table 14.1 below summarises the NPV for each option under the base case:

Table 14.1:
NPV Analysis – Base Case

Option	NPV £'000	Rank
1 – Do Nothing	-	3
2 – Enhanced NITHC Model	61,504	2
4 – Agency Model	110,281	1

Under our base case assumptions, Option 4 (Agency) produces the highest NPV.

Our analysis above suggests that both of the 'do-something' options have the potential to generate significant benefits by exerting greater influence on operators to generate efficiency savings.

We estimate that both 'do-something' options would carry a broadly similar level of costs at an operational level (£0.4-0.6m per annum for both). However, we have assumed that an independent Agency would have more effective levers than an enhanced NITHC over the

performance of Translink and other operators, and that operational efficiency savings would therefore be greater under this option.

As described earlier in the OBC, we have had to make a variety of assumptions about costs and benefits at both organisational and operational levels. We have therefore conducted additional sensitivity analysis to assess the impact of changes in certain assumptions on the timing and amount of costs and benefits.

14.3 Sensitivities Examined

To test the robustness of the above rankings, we have conducted NPV analysis under two sensitivities which reflect variations in key assumptions:

- **Sensitivity 1 - Timing:** Operational costs and benefits take longer to reach their end state, arriving there in equal increments over a period of 10 years instead of five
- **Sensitivity 2 – Amount:** Option 4 (Agency) produces the same level and profile of operational benefits as the base case for Option 2 (Enhanced NITHC); and
- **Sensitivity 3 - Amount:** Both the 'do-something' options produce only 75% of their base case operational benefits, reaching their end state over a period of five years.

Sections 14.4 and 14.5 present the results of the sensitivity analysis we have undertaken for the OBC.

14.4 NPV – Sensitivity 1

Table 14.2:
NPV Analysis – Sensitivity 1

Option	NPV £'000	Rank
1 – Do Nothing	-	3
2 – Enhanced NITHC Model	48,419	2
4 – Agency Model	88,243	1

Under this scenario, after flexing the timing of operational costs and benefits, Option 4 emerges with the highest NPV. This is largely due to the difference in the level of operational efficiency savings which we have estimated that the NITHC and Agency models could help generate.

14.5 NPV – Sensitivity 2

Table 14.3:
NPV Analysis – Sensitivity 2

Option	NPV £'000	Rank
1 – Do Nothing	-	3
2 – Enhanced NITHC Model	61,504	2
4 – Agency Model	63,714	1

In Sensitivity 2, assuming both the 'do-something' options generate the same level of operational benefits, Option 4 once again produces the highest NPV for the three options, albeit only by a very small margin over the Enhanced NITHC model.

14.6 NPV – Sensitivity 3

Table 14.4:
NPV Analysis – Sensitivity 3

Option	NPV £'000	Rank
1 – Do Nothing	-	3
2 – Enhanced NITHC Model	44,490	2
4 – Agency Model	81,624	1

In Sensitivity 3, assuming each of the 'do-something' options produces only 75% of the projected base case operational costs and benefits, Option 4 has the highest NPV for the three options appraised.

14.7 Summary of NPV and Sensitivity Analysis

Table 14.4 below summarises our NPV analysis for the base case and three sensitivities considered:

Table 14.5:
NPV Analysis – Summary

	BASE CASE		SENSITIVITY 1		SENSITIVITY 2		SENSITIVITY 3	
Option	**NPV £'000**	**Rank**	**NPV £'000**	**Rank**	**NPV £'000**	**Rank**	**NPV £'000**	**Rank**
1 – Do Nothing	-	3	-	3	-	3	-	3
2 – Enhanced NITHC	61,504	2	48,419	2	61,504	2	44,490	2
4 – Agency	110,281	1	88,243	1	63,714	1	81,624	1

Under the base case and all three sensitivities, Option 4 (Agency model) emerges with the highest NPV of the three options considered and therefore ranks best in terms of the monetary assessment, under all scenarios examined.

As noted in the analysis above, both the NITHC and Agency models would carry a fairly similar level of organisational costs, but we believe the Agency model would bring greater potential for efficiency savings at the operational level.