
6 OCTOBER 2020

ACCESSIBLE HOUSING THE WAY FORWARD

**SUPPLEMENTARY INFORMATION
PROVIDED TO THE AUSTRALIAN
BUILDING CODES BOARD
CONSULTATION RIS**

Submitted by:
Melbourne Disability Institute
Summer Foundation



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Accessible Housing – The Way Forward

Supplementary Information provided to the Australian Building Codes Board Consultation RIS

The Melbourne Disability Institute (MDI) and the Summer Foundation are pleased to provide this supplementary information following our meeting with representatives from the Australian Building Codes Board (ABCB) and the Centre for International Economics (CIE) on 17 September. This supplementary information should be read in conjunction with our submission.

The time constraints during the online meeting of 17 September 2020 did not permit full discussion of important economic considerations associated with the Regulatory Impact Statement (RIS) or the qualitative study. Therefore, the following information is provided to assist CIE in their finalisation of their evaluation, and for the ABCB's consideration of the results.

This supplementary information adds further weight to our core recommendation that governments adopt Option 2, which would set minimum mandatory standards for accessible housing at the Gold (LHDG) standard.

Supplementary Economic Information from Andrew Dalton and Professor Rob Carter

The supplementary economic analysis from Mr Andrew Dalton and Emeritus Professor Carter is at Appendix A. In essence, it addresses four key issues.

First, Dalton and Carter have reaffirmed that the Willingness to Pay (WTP) approach, favoured in their original report, continues to be strongly preferred. This contrasts with the CIE preference for the problem-reduction approach.

The Dalton and Carter approach is based on the close alignment between the WTP approach and the Social Cost Benefit Analysis (CBA) Guidelines for Regulatory Impact Statements, where importance is placed on fully reflecting the balance between costs and benefits for all parties impacted by the proposed regulation. It is therefore a recommendation that is central to ensuring that the RIS for Accessible Housing is framed optimally.

Second, Dalton and Carter have directly addressed the question of whether there is overlap between the benefits identified in the problem-reduction approach and the WTP approach, as set out in Table 7.2 and 7.3 in the CIE report.

They have excluded the four items from Table 7.2 that estimate the value of private costs avoidable with accessible housing, namely; 'reduced loneliness', 'reduced home modifications', 'reduced carers', and 'reduced moving' – all of which are assumed to be borne privately without public subsidy – because: i) they might possibly have been captured in the valuations for: 'getting in and out', 'moving around indoors', 'ease of entrance', and 'modifications for ageing'; or ii) they may have been picked up in the value attached to the altruism question, which does mention health risks. The total omission of private resource savings on an assumption of double counting is designed to be very conservative and so ensure that there is no double-counting of benefits.

Third, Dalton and Carter address the treatment of the capital value of the additional space in the CIE report. No-one would buy a house on the market if it lost all value once purchased. Similarly, no one would buy a house if no-one could use it.

The CIE report outlines the difficulty of estimating the 'speculative expectation on capital gains' that may have been in the minds of respondents. The CIE further states that "For these reasons, our view is the renter model provides the best estimates of the *use value* of the accessibility features because

it is less confounded by other effects” (p.218, CIE report). However, the CIE approach effectively implies a capital write-off to zero of all space required to allow for accessible features. This assumption of total loss is a more extreme assumption than a major capital gain and so seems very difficult to justify. Therefore, Dalton and Carter conclude that a balanced and conservative approach would be to assume that the capital value is constant without further real gain or loss.

Applying these three key assumptions to the CIE model leads to the following cost-benefit ratios, all of which exceed 1.0:

	Option 1	Option 2	Option 3	Option 4	Option 5
Cost-Benefit ratio	2.52	1.21	1.04	1.09	1.09

Fourth, Dalton and Carter have added additional information in relation to other matters identified in their original report. They have now quantified the impact of including an updated estimate for the Value of a Statistical Life (VSL), which adds approximately \$24M to the benefits. This is small but nonetheless an important contribution to accurate estimates and the CIE would be in position to quickly integrate the updated VSL value into their modelling.

Using information in the CIE report, however, they have been able to approximate the impact on CBA ratios of including the updated value of informal care from Deloitte Access Economics, which has a significant impact, as follows:

	Option 1	Option 2	Option 3	Option 4	Option 5
Cost-Benefit ratio	2.98	1.30	1.11	1.15	1.82

Table Note: These CBA ratios include the updated value for informal care, but not VSL

They also cite new research from RMIT University¹ which found that 95% of caregivers to the aged believe that home design influences the level of care required. While these impacts are transfer payments and not relevant to the Social Cost Benefit Analysis, they do represent a significant potential saving, at a time of unprecedented budget deficits and given that the Commonwealth Government announced in the 2020-21 Budget that it will provide 180,000 Home Care Packages.

Finally, as noted in our meeting, current 30-year bond rates in Australia are 1.87% and given this broadly equates to the economic life of a house, it is difficult to justify a discount rate of 7%. At the same time, it was also noted that the Office for Best Practice Regulation (OBPR) has not yet adjusted its preferred discount rate and that moving the discount rate to 1.87% may be too far. However, given that the additional costs of accessible housing are up-front and the benefits are in the future, an inappropriately high discount rate will especially bias these RIS results. Therefore, the sensitivity analysis in the CIE report showing the impact of a 3% discount rate cannot be ignored and when applied to the revised Dalton and Carter estimates show cost-benefit ratios which are all well in excess of 1.0, as follows:

	Option 1	Option 2	Option 3	Option 4	Option 5
Cost-Benefit ratio at 3% discount rate	3.72	1.79	1.53	1.61	1.61

¹ Sinclair, S., de Silva, A., Kopanidis, F.; (2020) *Exploring the economic value embedded in housing built to universal design principles Bridging the gap between public placemaking and private residential housing* RMIT University Centre for Urban Research (<https://apo.org.au/sites/default/files/resource-files/2020-09/apo-nid308331.pdf>)

Supplementary Qualitative Information from Dr Ilan Wiesel

The supplementary qualitative information from Dr Wiesel is at Appendix B.

As noted in our submission, the Office of Best Practice Regulation in their Guidance Note on Cost-Benefit Analysis² states:

- ‘CBA [Cost Benefit Analysis] requires you to identify explicitly the ways in which the proposal makes individuals better or worse off.’³
- ‘You should report cost and benefit estimates within three categories:
 - monetised
 - quantified, but not monetised
 - qualitative, but not quantified or monetised.’⁴

The exclusion of qualitative information from the CIE report is therefore a major shortcoming, which is addressed through the study entitled *Living with a disability in accessible housing: social, health and economic outcomes*, by Dr Wiesel. It includes over 1187 survey responses and 40 in-depth interviews, providing some of the most comprehensive data ever collected in Australia about the lived experience of people with a disability living in accessible or inaccessible housing. Further analysis of this data by Dr Wiesel identifies three key points.

First, it was suggested in the meeting on 17 September that there is no evidence of unmet demand for accessible homes in the general population, and that there is only anecdotal evidence that people with mobility restrictions who actively seek to build new accessible homes, face barriers preventing them from doing so. In response, Dr Wiesel has presented evidence that demand for accessible homes by people with mobility restrictions is being suppressed by structural market failure.

Second, CIE considers home modification as one of the ways the market, with policy assistance, already responds to the need for accessible housing. However, the data from Dr Wiesel demonstrates that of those who live in homes that have been modified, most (84%) live in homes that have only been partly modified to meet their needs, and thus would benefit from additional accessible supply achieved through introduction of a minimum accessibility standard in the building code.

Third, in the meeting with MDI, CIE expressed scepticism as to the relevance of Carnemolla and Bridge’s⁵ evidence that housing with accessibility features reduces care needs. The Wiesel report presents data on a much larger sample of participants than those examined by Carnemolla and Bridge, and confirms their findings on reduction in support for people living in both newly built accessible housing and fully modified homes. One particularly striking result, amongst many, is that 32.4% of people with high support needs living in homes built accessible reported a decline in need for unpaid support.

² Office of Best Practice Regulation, Department of the Prime Minister and Cabinet, Cost-Benefit Analysis Guidance Note, February 2016

³ *ibid*, p4

⁴ *ibid*, p11

⁵ Carnemolla, P. and Bridge, C., Housing Design and Community Care: How Home Modifications Reduce Care Needs of Older People and People with Disability, *International Journal of Environmental Research and Public Health*, 2019.

Furthermore, the findings from Dr Wiesel suggest the range of everyday activities for which paid support is provided, and which can be reduced by accessible housing, is wider than that estimated in CIE's report. The CIE has focused exclusively on paid and unpaid assistance with mobility tasks⁶. In contrast, the Wiesel analysis shows that inaccessible housing also significantly increases need for assistance with self-care and other domestic activities.

While none of these effects have been monetised, these findings from Dr Wiesel would add to the benefits identified in the RIS and should be incorporated, as recommended by the OBPR.

Conclusions

We would like to thank the ABCB for facilitating our discussion with CIE and the opportunity to follow up on those discussions through the provision of this Supplementary Information, which we hope will be of value to CIE, the ABCB and, ultimately, Ministers in their deliberation on incorporating accessible housing standards into the National Construction Code. We would also welcome the opportunity for further discussion, if it would be helpful.

Finally, based on the supplementary information contained in the report, we reaffirm our recommendation for the ABCB to adopt Option 2 in the Consultation RIS, because the benefits significantly exceed the costs and because this option will provide future proofing of Australian housing, so it meets the needs of all Australians going forward.



Professor Bruce Bonyhady AM
Executive Chair and Director
Melbourne Disability Institute



Dr Di Winkler AM
CEO and Founder
Summer Foundation

⁶ CIE, 2020, p. 140

Appendix 1

Economic advice prepared to assist with responses to the Consultation Regulation Impact Statement on minimum accessibility standards for housing in the National Construction Code

Supplementary information prepared for: The Melbourne Disability Institute, University of Melbourne and the Summer Foundation

Prepared by: Andrew Dalton, Director AdHealth Consulting (former Associate Professor, Deakin Health Economics, Deakin University) and Emeritus Professor Rob Carter, Deakin University (former Alfred Deakin Professor and Foundation Director, Deakin Health Economics)

Appendix 2

Living with disability in inaccessible housing: social, health and economic impacts

Supplementary report submitted to the Australian Building Codes Board RIS

Prepared by: Dr. Ilan Wiesel, Melbourne School of Geography, University of Melbourne

Economic advice prepared to assist with responses to the
Consultation Regulation Impact Statement on minimum
accessibility standards for housing in the National Construction
Code

Supplementary information prepared for:
The Melbourne Disability Institute, University of Melbourne and the
Summer Foundation

6 October 2020

Prepared by

**Andrew Dalton, Director AdHealth Consulting
(former Associate Professor, Deakin Health Economics,
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and

**Emeritus Professor Rob Carter, Deakin University
(former Alfred Deakin Professor and Foundation Director,
Deakin Health Economics)**

1 Introduction

The time constraints on the online meeting of 17 September 2020 did not permit full discussion of important economic considerations associated with the Regulatory Impact Statement (RIS). Therefore, the following information is provided to assist CIE in their finalisation of their evaluation, and for the Department/Board’s consideration of the results.

2 Background

In the Dalton/Carter Economic Report, the WTP approach was strongly preferred. This reflects the close alignment between the WTP approach and the Social Cost Benefit Analysis (CBA) Guidelines for Regulatory Impact Statements, where importance is placed on fully reflecting the balance between costs and benefits for all parties impacted by the proposed regulation.

Suggestions were also made to further strengthen the rigour of the CBA analysis undertaken by the CIE, particularly in regard to the measurement of benefits. From the information available to us, the results of applying key aspects¹ of these suggestions are shown in Table 1 (without any change to the discount rate). In contrast to the interpretation of the results of the CBA analysis in the CIE report, the results in Table 1 clearly favour reform. All options considered provide net benefits. A schematic of the methods used to derive these results is shown in Figure 1 (the original data contributing to these analyses are reproduced from the CIE report in Figure 2).

Table 1: Benefit-cost ratios adjusted for improved capital value and utility in use in WTP approach in both univariate and multivariate analysis

Univariate analysis	Assumptions re. benefits from RIS Tables 7.2 & 7.3				
	Option 1 Silver	Option 2 Gold	Option 3 Gold +	Option 4	Option 5 Subsidy
WTP Base case benefit-cost ratios in CIE report	0.85	0.30	0.24	0.17	0.89
Add capital value of space to benefits	1.23	0.56	0.53	0.73	1.00
Multivariate analysis [benefits from Tables 7.2 & 7.3] + [capital value of space]					
Base case benefits	1.23	0.56	0.53	0.73	1.00
Benefits overlap 75% + Cap value	1.64	0.74	0.67	0.83	1.16
Benefits overlap 50% + Cap value	2.05	0.92	0.81	0.93	1.32
Benefits overlap 25% + Cap value	2.46	1.10	0.95	1.03	1.48
No overlap of benefits + Cap value	2.87	1.28	1.09	1.13	1.64

Source: Table ES4: Benefit-cost ratios adjusted for improved capital value and utility in use in WTP approach in both univariate and multivariate analysis, Dalton/Carter report.

¹ Note these results cover only resource cost offsets and capital gain and do not include a range of other points also raised in the Dalton/Carter report, viz:

- An updated estimate for value of a statistical life (VSL), reflecting a recent literature review;
- Adding productivity aspects linked to premature death, premature retirement, hospitalisations, and practitioner visits (as routinely estimated in health economics);
- Adding a value for intangibles, particularly quality of life improvement; and
- Including the updated value for carer’s time (\$36; refer p.18, Table 2.4, The value of informal care in 2020, Deloitte Access Economics) as raised in correspondence from Professor Bonyhady.

Our discussions on 17 September included the significance of affordability and policy impact in the RIS assessment. These are important but secondary considerations to establishing whether the CBA shows a net benefit. The focus of this supplementary information is therefore upon the CBA itself.

3 Supplementary Information

Three technical areas are highlighted in this supplementary information:

1. The extent of any overlap in the estimates of benefits in Tables 7.2 and in 7.3 of the CIE report, and;
2. Allowance for retention of the capital value of additional space for accessibility; and
3. Discounting and valuation of benefits

3.1 Extent of overlap

Central to the issue of overlap in benefits is what unstated considerations respondents would have included in their valuations given in response to the questions asked of them. There is widespread agreement in the economic literature that respondents' valuations in WTP/DCA are highly dependent on the depth, breadth and clarity of the scenarios/questions put to them. In particular, important dimensions need to be clearly described. It is most problematic to simply assume that respondents include factors that are not clearly specified or not even mentioned at all.

In relation to the extent of overlap, it is our understanding that the CIE perspective is that the resource savings listed as 'benefits' in Table 7.2 (CIE Report) would have been integral to the WTP estimates provided by the respondents to their survey. We have carefully looked again at the WTP sections of the CIE report. The main survey is clearly about "...housing features that affect accessibility" (p230, CIE Report) and the associated amenity/loss of amenity. All questions are drafted accordingly – they are short, targeted, with specific focus. Overlap between this survey and issues other than the amenity of housing features would be unlikely and quite sporadic if it occurred. Such overlap would not constitute a valid argument for double counting or for omitting a whole benefit category.

It is not until the WTP questions on altruism (termed "Societal benefits" in the tables) that broader aspects are specifically mentioned, and even then they are only very briefly described, viz:

*"As a result some people with limited mobility have difficulty finding an accessible home and instead live in unsuitable housing with a carer. **This can lead to health risks from slips, trips and falls and places extra demands on carers.**" (p257, CIE Report, our bolding)*

The question then arises as to whether the range of benefits in the "problem reduction" approach are clearly presented to respondents by the 17 words in bold? While "health risks" are mentioned, importantly there is no reference to the resource cost consequences of reduced risk, and which respondents would know in any event would mostly accrue to government (or private health insurers) and not to them. If respondents did deduce this impact from the question for individuals with accessibility needs, and take a societal perspective rather than a personal perspective, they would not have done it in any consistent way.

In our view, therefore, the assumption that all components of the problem-reduction approach are implicitly considered by respondents to the WTP survey, constitutes a serious omission of potential benefits. We would strongly urge the CIE to review the extent of any potential overlap they have

assumed in their report. Rather than assume extensive, if not total overlap, a more realistic assumption we believe is that only privately borne costs and inconvenience (or disutility) were considered in the WTP responses in any consistent way. The costs payable by either public healthcare or private health care insurance, and therefore not considered by WTP respondents, would then be:

- Health care costs of reduced falls (\$46M);
- Reduced time in hospital/transition from earlier discharge (\$187M);
- Reduced premature/inappropriate entry to aged care (\$210M);
- Given the costs of carers (\$557M) and home modification costs (\$478M) involve public subsidies, it could also be argued that the list of savings should be greater, but for simplicity it is assumed here that there are no such public subsidies, and all costs are borne privately.

The CIE base case for the 'problem reduction' approach reports ratios of 0.77 and 0.14 for Options 1 & 2 respectively. Restriction of the savings to only those accruing to the public purse still produces ratios of 2.06 and 0.80 respectively. The Silver standard clearly has a positive net-present value (NPV) with these resource savings added, while the Gold standard is approaching a positive NPV. The addition of benefits not included so far (refer Footnote 1) and/or a lower discount rate may well bring the Gold standard into a positive NPV as well.

In the Dalton/Carter report, the effect of combining the 'benefits' of resource savings and welfare gains from Tables 7.2 and 7.3 of the CIE report under an assumption that there is no overlap produced cost-benefit ratios between 2.87 and 1.09 (Table 1). Table 2 shows the effect of reproducing this result after adjusting for an assumption that the estimates of private costs are integral to the WTP estimates. That is, the steps taken to produce Table 2 were:

- Firstly, combine the 'benefits' of resource savings and welfare gains from Tables 7.2 and 7.3 of the CIE report. Costs remain as estimated by CIE for both Tables 7.2 and 7.3;
- Then delete the four items that estimate the value of private costs, namely; 'reduced loneliness', 'reduced home modifications', 'reduced carers', and 'reduced moving' – all of which are assumed in Table 2 to be borne privately without public subsidy (refer grey shaded area in Table 2); and;
- Under this assumption, the four items above are deleted as: i) they might possibly have been captured in the valuations for: 'getting in and out', 'moving around indoors', 'ease of entrance', and 'modifications for ageing', even though not mentioned at all in the questions (shaded in green in Table 2); or ii) they may have been picked up in the value attached to the altruism question, which does mention health risks. The total omission of private resource savings on an assumption of double counting seems very conservative, but is closer to the CIE position.

Table 2: Restriction of the savings to only those accruing to Government budgets.

	Option 1	Option 2	Option 3	Option 4	Option 5
	\$million	\$million	\$million	\$million	\$million
Benefits					
Reduced falls	45.68	51.69	54.52	15.13	154.27
Reduced time in hospital/transition care	186.88	211.45	223.04	61.89	631.05
Reduced costs associated with loneliness					
Reduced home modification costs					
Reduced carer related costs					
Reduced incidence of moving					
Reduced premature/inappropriate entry to aged care	209.54	237.09	250.09	69.40	707.58
Getting in and out	0.00	0.00	0.00	0.00	0.00
Moving around indoors	5354.20	7335.76	7335.76	2191.92	2462.30
Living with mobility on same level as an entrance	330.27	1558.63	1558.63	0.00	605.54
Minimal modification required for ageing in place	0.00	6423.79	6423.79	1919.42	1685.88
Societal benefits	1031.33	1106.60	1106.60	326.25	1900.96
Total benefits	7157.90	16925.01	16952.43	4584.01	8147.58
Costs					
Construction costs	-1866.72	-12384.81	-15904.40	-3602.32	0.00
Opportunity costs of space	-1571.81	-8831.55	-11162.57	-6541.11	0.00
Industry re-training costs	-28.47	-28.47	-28.47	-28.47	0.00
Subsidy	0.00	0.00	0.00	0.00	-7455.55
Total costs	-3467.00	-21244.83	-27095.44	-10171.90	-7455.55
Net benefit/costs	3690.90	-4319.82	-10143.01	-5587.89	692.03
Cost-Benefit ratio	2.06	0.80	0.63	0.45	1.09

3.2 Omission of capital value

The second issue raised in this supplementary information is the treatment of the capital value of the additional space. The CIE report estimates the additional space required to accommodate the accessibility improvements, and correctly values the (opportunity) cost of this space at current market value. The 'value' of the benefit from this additional space though can be thought of as having two intrinsic components, an *investment characteristic* and a *utilisation characteristic*. This is recognised in the CIE report but which also outlines the difficulty of estimating the 'speculative expectation on capital gains' that may have been in the minds of respondents. The CIE further states that "For these reasons, our view is the renter model provides the best estimates of the *use value* of the accessibility features because it is less confounded by other effects" (p.218, CIE report).

An important question here is whether in the presence of uncertainty, it is better to ignore an important benefit category, particularly to home owners, or to include a modest estimate. If the outcome is important, inclusion seems preferable to omission. Both the capital and utilisation characteristics are important. No-one would buy a house on the market if it lost all value once purchased – the capital characteristic. Similarly, no one would buy a house (other than for investment reasons) if no-one could use it – the utilisation characteristic.

We agree with the CIE view that estimates of the expected capital *gain* in the mind of respondents to the survey (made prior to the current pandemic) may be difficult. However, the CIE approach effectively implies a capital write-off to zero, which is equally difficult to justify. Therefore, a balanced and conservative approach would be to assume that the capital value is constant *without further real gain*. Respondents may include a risk premium in their valuation, but we would argue strongly that an approach that assumes a constant capital value will be a closer estimate of the 'true' valuation than the current approach of recognising the cost but not the retained value. Table 3 shows this allowance for retaining the capital value of the additional space. A floor value for the capital characteristic is the initial outlay or cost of the additional space. Table 3 builds on the results shown in Table 2 by including an allowance for the retained value of the property.

The CBA ratios show the benefits for all options exceed costs and range from 2.52 to 1.04.

Table 3: Allowance for retention of the capital value of additional space for accessibility.

	Option 1	Option 2	Option 3	Option 4	Option 5
	\$million	\$million	\$million	\$million	\$million
Benefits					
Reduced falls	45.68	51.69	54.52	15.13	154.27
Reduced time in hospital/transition care	186.88	211.45	223.04	61.89	631.05
Reduced costs associated with loneliness					
Reduced home modification costs					
Reduced carer related costs					
Reduced incidence of moving					
Reduced premature/inappropriate entry to aged care	209.54	237.09	250.09	69.40	707.58
Getting in and out	0.00	0.00	0.00	0.00	0.00
Moving around indoors	5354.20	7335.76	7335.76	2191.92	2462.30
Living with mobility on same level as an entrance	330.27	1558.63	1558.63	0.00	605.54
Minimal modification required for ageing in place	0.00	6423.79	6423.79	1919.42	1685.88
Societal benefits	1031.33	1106.60	1106.60	326.25	1900.96
Capital value of increased space	1571.81	8831.55	11162.57	6541.11	0.00
Total benefits	8729.71	25756.56	28115.00	11125.12	8147.58
Costs					
Construction costs	-1866.72	-12384.81	-15904.40	-3602.32	0.00
Opportunity costs of space	-1571.81	-8831.55	-11162.57	-6541.11	0.00
Industry re-training costs	-28.47	-28.47	-28.47	-28.47	0.00
Subsidy	0.00	0.00	0.00	0.00	-7455.55
Total costs	-3467.00	-21244.83	-27095.44	-10171.90	-7455.55
Net benefit/costs	5262.71	4511.73	1019.56	953.22	692.03
Cost-Benefit ratio	2.52	1.21	1.04	1.09	1.09

3.3. Discounting and valuation of benefits

The clarification of our views that are provided in this supplementary information are of course additional to the remaining points raised in our report of 18 August 2020. These include:

- The value of a statistical life (VSL) used in the CIE report;
- Productivity impacts;
- The value of informal care as raised in correspondence from Professor Bonyhady, and;
- An appropriate discount rate.

Updated estimate for VSL

In the Dalton/Carter report we provided updated estimates for VSL based on a systematic literature review that is about to be published in the journal *Health Policy*. The VSL used in the CIE report of \$4.5M is considerably lower than the value of \$7.0M [High: \$7.9M; Low: \$4.5M] reported in the systematic review. If the VSL estimate in Table A.7 (p127) of the CIE Report of \$38.44M for falls-related deaths is updated to \$7.0M, then the new estimate is \$62.58M. The additional benefit of \$24.14M is a small but nonetheless an important contribution to accurate estimates.

Productivity Impacts

Health-related productivity impacts for those with accessible housing needs would take longer to estimate. It should be noted that this estimate would also pick-up impacts for informal care, where carers can return to the workforce or increase their time in their workforce. Further, in addition to impacts on the paid workforce, it is not uncommon to include domestic production in the health economics literature.

Without access to the model, it is not possible to estimate either the impact of changing the VSL, or the productivity impacts for the variables of premature death/retirement avoided and hospitalisations avoided etc. However, it should be straightforward for CIE to apply the recommended changes to these parameters in their model.

The value of informal care

It is also difficult to reliably estimate the impact of a change in the value of informal care from \$19.49 per hour in the CIE report to \$36.10 as estimated in the Deloitte Access Economics report, although information provided in the CIE report enables an indication of the potential impact. Table B.2 (p.140 of the CIE report) provides the CIE estimates of the average reduction in hours of care received following home modifications that were used in the model. The approach taken to obtain an approximation of the model’s estimate of the aggregate reduction in hours of care for each Option was performed by dividing the estimated discounted dollar-value of savings from reduced hours of care by the average costs of carer time per hour (a weighted average of informal care and formal care time savings from in Table B.2 of the CIE report). The results of applying a re-weighted average cost per hour to aggregate reduction in hours of care, using the value of \$36.10 for informal care, changes the savings from in carer time from home modifications as shown in Table 4.

Table 4: Re-Estimation of savings from reduced carer time

Source of Estimate	Option 1	Option 2	Option 3	Option 4	Option 5
CIE model base case for ‘problem reduction’ approach	\$557.17	\$630.43	\$664.98	\$184.53	\$1,881.44
Approximation after valuing informal care at \$36.10 per hr.	\$952.39	\$1,077.62	\$1,136.68	\$315.42	\$3,216.02

To illustrate the impact of the higher valuation of informal care, the results of applying the revised estimates of carer time savings in Table 4 to the suggested base case in the Dalton/Carter report are shown in Table 6 (the revised values have been shaded). All options offer a positive net present value after this adjustment.

Although not included in our estimates, a recent report published by RMIT University² found in a small survey that 95% of caregivers to the aged believe that home design influences the level of care required. This represents a significant potential saving given that the Commonwealth Government announced in the 2020-21 Budget that it will now provide 180,000 Home Care Packages and that the marginal differential in the annual government subsidy of moving the home care package between funding levels is significant, viz:

- \$6,717 in moving from level 1 to level 2;
- \$18,304 in moving from level 2 to level 3; and
- \$17,469 in moving 2 to level 3.

² Sinclair, S., de Silva, A., Kopanidis, F.; (2020) *Exploring the economic value embedded in housing built to universal design principles Bridging the gap between public placemaking and private residential housing* RMIT University Centre for Urban Research (<https://apo.org.au/sites/default/files/resource-files/2020-09/apo-nid308331.pdf>)

While these impacts are transfer payments and not relevant to the Social Cost Benefit Analysis, they do suggest that the potential impact on government finances could be significant at a time of unprecedented deficits.

Table 5: Dalton/Carter base case after adjusting savings from reduced cost of informal care time

	Option 1	Option 2	Option 3	Option 4	Option 5
	\$million	\$million	\$million	\$million	\$million
Benefits					
Reduced falls	45.68	51.69	54.52	15.13	154.27
Reduced time in hospital/transition care	186.88	211.45	223.04	61.89	631.05
Reduced costs associated with loneliness	154.76	175.11	184.71	51.26	522.59
Reduced home modification costs	477.67	540.49	570.10	158.20	1613.01
Reduced carer related costs	952.39	1077.62	1136.68	315.42	3216.02
Reduced incidence of moving	22.88	25.89	27.31	7.58	77.27
Reduced premature/inappropriate entry to aged care	209.54	237.09	250.09	69.40	707.58
Societal benefits					
Getting in and out	0.00	0.00	0.00	0.00	0.00
Moving around indoors	5354.20	7335.76	7335.76	2191.92	2462.30
Living with mobility on same level as an entrance	330.27	1558.63	1558.63	0.00	605.54
Minimal modification required for ageing in place	0.00	6423.79	6423.79	1919.42	1685.88
Capital value of space	1571.81	8831.55	11162.57	6541.11	0.00
Total benefits	10337.41	27575.67	30033.80	11657.58	13576.47
Costs					
Construction costs	-1866.72	-12384.81	-15904.40	-3602.32	0.00
Opportunity costs of space	-1571.81	-8831.55	-11162.57	-6541.11	0.00
Industry re-training costs	-28.47	-28.47	-28.47	-28.47	0.00
Subsidy	0.00	0.00	0.00	0.00	-7455.55
Total costs	-3467.00	-21244.83	-27095.44	-10171.90	-7455.55
Net benefit/costs	6870.41	6330.84	2938.36	1485.68	6120.92
Cost-Benefit ratio	2.98	1.30	1.11	1.15	1.82

An appropriate discount rate.

Finally, the difficulties in making a decision to choose a more appropriate discount rate other than the annual rate of 7 per cent specified by the Office of Best Practice Regulation (OBPR), are again acknowledged. But given the importance of their impact upon the results, the effect of choosing a discount rate of 3% upon cost-benefit ratios shown in Table 3 for interest.

Table 6: Effect of applying a 3% discount rate.

	Option 1	Option 2	Option 3	Option 4	Option 5
Cost-Benefit ratio from Table 3 at 3% discount rate	3.72	1.79	1.53	1.61	1.61

4 Summary

The supplementary information provided here seeks to address the core issues that were not discussed on 17 September due to time constraints. As such, it serves to provide important clarification of the issues previously raised. The key issues raised in this paper are:

Section 3.1:

It seems clear to us that there is at most only a partial overlap between the benefits listed in Tables 7.2 and 7.3 of the CIE report. The consumer foundations of microeconomic theory dictate that rational behaviour by the respondents would have been to only consider private costs, not those incurred by third parties; particularly without any consideration given to how externalities might be internalised. If all private costs were indeed considered (and any public subsidies that apply to these ignored), deletion of these private costs from our results in Table 1 still produces CBA ratios of 2.06 to 0.80 (Table 2).

Section 3.2:

Secondly, the use of the 'renter model' in the results omits the capital characteristic of the additional space. Inclusion of this at the purchase value increases the ratios to between 2.52 and 1.04 (Table 3).

Section 3.3:

Each of the issues raised in this Section have a moderate impact upon results. However, the cumulative effect if they were aggregated would have a large impact upon results, the closest approximation of which would be Table 5, which still retains the base case annual discount rate of 7 per cent in compliance with OBPR policy.

Importantly, as stated in the Dalton/Carter report of 18 August 2020, we would like to repeat our thanks to the CIE on what is a well presented and thorough evaluation. Our misgivings relate primarily to insufficient capture of the benefits and conviction that the robustness of the CBA evaluation would be greatly enhanced from better estimation of these.

Finally, we note that a recent report from RMIT³ examined the benefits of building code reforms with a particular focus upon the 7 million Australians aged between 50 and 75 years who have emerging accessibility needs. We note that their conclusion is consistent with our recommendations:

“We find that certain housing design and location feature have value that extends beyond that experienced solely by its residents, facilitating community capacity and social engagement, physical wellbeing and ease of delivery of public services such as care support” (p.2, Sinclair et al., 2020)

³ Sinclair, S., de Silva, A., Kopanidis, F.; (2020) *Exploring the economic value embedded in housing built to universal design principles Bridging the gap between public placemaking and private residential housing* RMIT University Centre for Urban Research (<https://apo.org.au/sites/default/files/resource-files/2020-09/apo-nid308331.pdf>)

Figure 1: Schematic of approach to re-estimation of CBA results

REVISED TABLES

	Option 1	Option 2	Option 3	Option 4	Option 5
	\$million	\$million	\$million	\$million	\$million
Benefits					
Reduced falls	45.68	51.69	54.52	15.13	154.27
Reduced time in hospital/transition care	186.88	211.45	223.04	61.89	631.05
Reduced costs associated with loneliness	154.76	175.11	184.71	51.26	522.59
Reduced home modification costs	477.67	540.49	570.10	158.20	1613.01
Reduced carer related costs	557.17	630.43	664.98	184.53	1881.44
Reduced incidence of moving	22.88	25.89	27.31	7.58	77.27
Reduced premature/inappropriate entry to aged care	209.54	237.09	250.09	69.40	707.58
Getting in and out	0.00	0.00	0.00	0.00	0.00
Moving around indoors	5354.20	7335.76	7335.76	2191.92	2462.30
Living with mobility on same level as an entrance	330.27	1558.63	1558.63	0.00	605.54
Minimal modification required for ageing in place	0.00	6423.79	6423.79	1919.42	1685.88
Societal benefits	1031.33	1106.60	1106.60	326.25	1900.96
Capital value of increased space	1571.81	8831.55	11162.57	6541.11	0.00
Total benefits	9942.19	27128.48	29562.10	11526.69	12241.89
Costs					
Construction costs	-1866.72	-12384.81	-15904.40	-3602.32	0.00
Opportunity costs of space	-1571.81	-8831.55	-11162.57	-6541.11	0.00
Industry re-training costs	-28.47	-28.47	-28.47	-28.47	0.00
Subsidy	0.00	0.00	0.00	0.00	-7455.55
Total costs	-3467.00	-21244.83	-27095.44	-10171.90	-7455.55
Net benefit/costs	6475.19	5883.65	2466.66	1354.79	4786.34
Cost-Benefit ratio	2.87	1.28	1.09	1.13	1.64

These items estimate the value of resources savings to Government budgets

These items estimate the value of private benefits

CIE REPORT TABLES

CIE Report, Table 7.2: (the problem reduction approach)

	Option 1	Option 2	Option 3	Option 4	Option 5
	\$million	\$million	\$million	\$million	\$million
Benefits					
Reduced falls	45.68	51.69	54.52	15.13	154.27
Reduced time in hospital/transition care	186.88	211.45	223.04	61.89	631.05
Reduced costs associated with loneliness	154.76	175.11	184.71	51.26	522.59
Reduced home modification costs	477.67	540.49	570.10	158.20	1613.01
Reduced carer related costs	557.17	630.43	664.98	184.53	1881.44
Reduced incidence of moving	22.88	25.89	27.31	7.58	77.27
Reduced premature/inappropriate entry to aged care	209.54	237.09	250.09	69.40	707.58
Societal benefits	1031.33	1106.60	1106.60	326.25	1900.96
Total benefits	2685.91	2978.75	3081.35	874.24	7488.17
Costs					
Construction costs	-1866.72	-12384.81	-15904.40	-3602.32	0.00
Opportunity costs of space	-1571.81	-8831.55	-11162.57	-6541.11	0.00
Industry re-training costs	-28.47	-28.47	-28.47	-28.47	0.00
Subsidy	0.00	0.00	0.00	0.00	-7455.55
Total costs	-3467.00	-21244.83	-27095.44	-10171.90	-7455.55
Net benefit/costs	-781.09	-18266.08	-24014.09	-9297.66	32.62
Cost-Benefit ratio	0.77	0.14	0.11	0.09	1.00

CIE Report, Table 7.3: (the WTP approach)

	Option 1	Option 2	Option 3	Option 4	Option 5
	\$million	\$million	\$million	\$million	\$million
Benefits					
Getting in and out	0.00	0.00	0.00	0.00	0.00
Moving around indoors	5354.20	7335.76	7335.76	2191.92	2462.30
Living with mobility on same level as an entrance	330.27	1558.63	1558.63	0.00	605.54
Minimal modification required for ageing in place	0.00	6423.79	6423.79	1919.42	1685.88
Societal benefits	1031.33	1106.60	1106.60	326.25	1900.96
Total benefits	6715.80	16424.78	16424.78	4437.59	6654.68
Costs					
Construction costs	-1866.72	-12384.81	-15904.40	-3602.32	0.00
Opportunity costs of space	-1571.81	-8831.55	-11162.57	-6541.11	0.00
Industry re-training costs	-28.47	-28.47	-28.47	-28.47	0.00
Subsidy	0.00	0.00	0.00	0.00	-7455.55
Total costs	-3467.00	-21244.83	-27095.44	-10171.90	-7455.55
Net benefit/costs	3248.80	-4820.05	-10670.66	-5734.31	-800.87
Cost-Benefit ratio	1.94	0.77	0.61	0.44	0.89

Figure 2: Tables 7.2 and 7.3 in CIE report

7.2 Estimated net benefit/cost – problem reduction approach

	Option 1	Option 2	Option 3	Option 4	Option 5
	\$ million	\$ million	\$ million	\$ million	\$ million
Benefits					
Reduced falls	45.68	51.69	54.52	15.13	154.27
Reduced time in hospital/transition care	186.88	211.45	223.04	61.89	631.05
Reduced costs associated with loneliness	154.76	175.11	184.71	51.26	522.59
Reduced home modification costs	477.67	540.49	570.10	158.20	1 613.01
Reduced carer-related costs	557.17	630.43	664.98	184.53	1 881.44
Reduced incidence of moving	22.88	25.89	27.31	7.58	77.27
Reduced premature/inappropriate entry into aged care	209.54	237.09	250.09	69.40	707.58
Societal benefits	1 031.33	1 106.60	1 106.60	326.25	1 900.96
Total benefits	2 685.92	2 978.76	3 081.34	874.24	7 488.17
Costs					
Construction costs	-1 866.72	-12 384.81	-15 904.40	-3 602.32	0.00
Opportunity cost of space	-1 571.81	-8 831.55	-11 162.57	-6 541.11	0.00
Industry re-training costs	-28.47	-28.47	-28.47	-28.47	0.00
Subsidy	0.00	0.00	0.00	0.00	-7 455.55
Total costs	-3 467.00	-21 244.83	-27 095.43	-10 171.90	-7 455.55
Net benefit/costs	- 781.09	-18 266.07	-24 014.09	-9 297.66	32.62

^a During targeted consultations, most stakeholders agreed that Gold standard dwellings (under Option 2) would be suitable for most disabilities. Although the Gold + standard (Option 3) provides additional accessibility features (which may provide some benefits), it does not address any additional problem that is not addressed by a Gold standard dwelling. As this approach focuses on addressing identified problems, the estimated benefits of Option 3 are the same as Option 2.

7.3 Estimated net benefits/costs – willingness to pay approach

	Option 1	Option 2	Option 3	Option 4	Option 5
	\$ million	\$ million	\$ million	\$ million	\$ million
Benefits					
Getting in and out	0.00	0.00	0.00	0.00	0.00
Moving around indoors	5 354.20	7 335.76	7 335.76	2 191.92	2 462.30
Living with limited mobility on same level as an entrance	330.27	1 558.63	1 558.63	0.00	605.54
Minimal modification required for ageing in place	0.00	6 423.79	6 423.79	1 919.42	1 685.88
Societal benefits	1 031.33	1 106.60	1 106.60	326.25	1 900.96
Total benefits	6 715.81	16 424.79	16 424.79	4 437.60	6 654.68
Costs					
Construction costs	-1 866.72	-12 384.81	-15 904.40	-3 602.32	0.00
Opportunity cost of space	-1 571.81	-8 831.55	-11 162.57	-6 541.11	0.00
Industry re-training costs	-28.47	-28.47	-28.47	-28.47	0.00
Subsidy	0.00	0.00	0.00	0.00	-7 455.55
Total costs	-3 467.00	-21 244.83	-27 095.43	-10 171.90	-7 455.55
Net benefit/costs	3 248.81	-4 820.04	-10 670.65	-5 734.30	-800.87

Note: Costs and benefits are presented in net present value terms covering a 10-year regulatory period from 2022 to 2031, using a discount rate of 7 per cent. Benefits are extended out an additional 30 years, reflecting the flow of benefits over the life of dwellings constructed during the regulatory period.

Source: CIE estimates.



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School of Geography

Living with disability in inaccessible housing: social, health and economic impacts

Supplementary information

2 October 2020

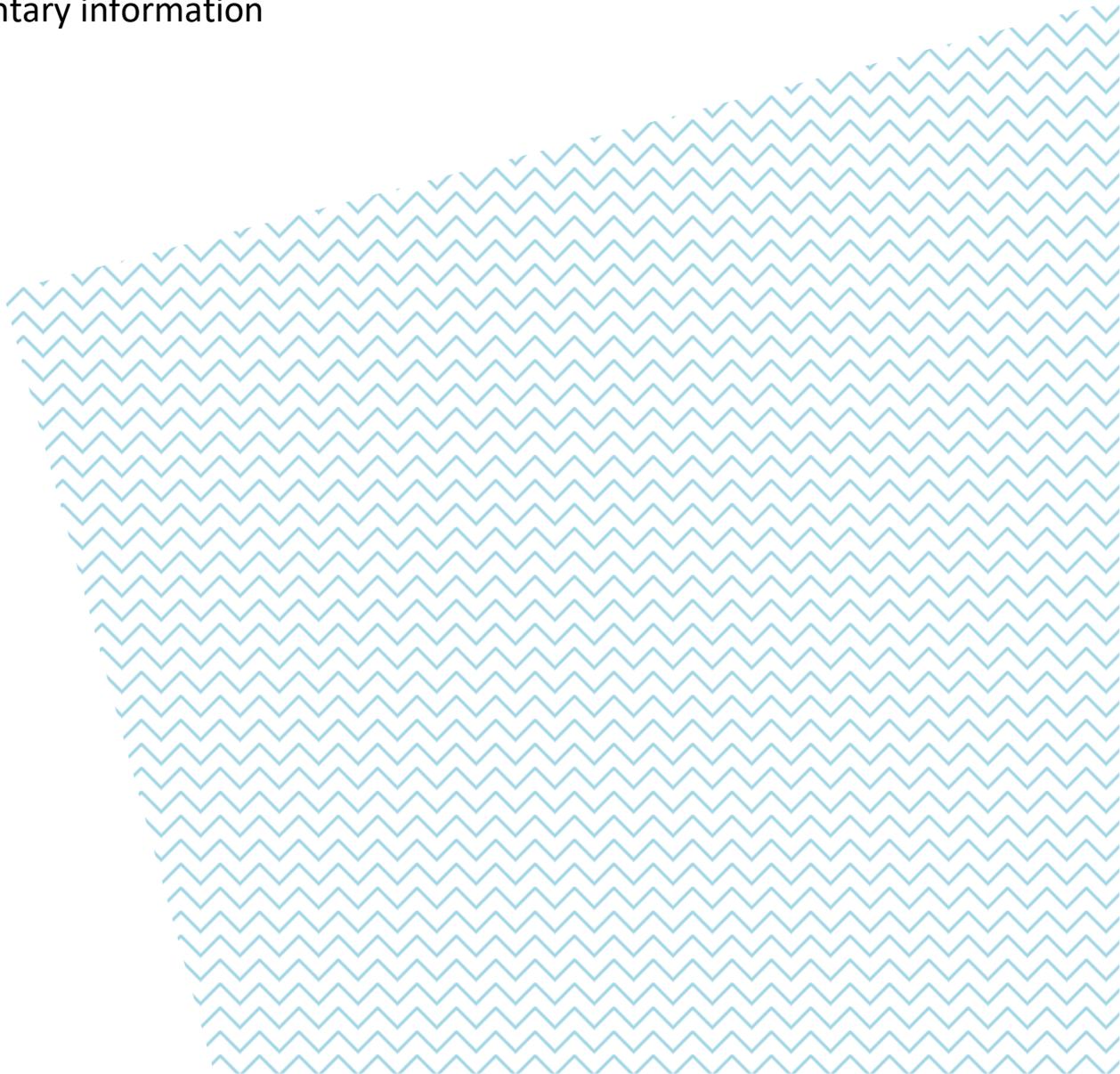


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Supplementary Information

The time constraints during the preparation of the initial submission to the ABCB from the qualitative survey and interviews and during the online meeting of 17th September 2020 did not permit full discussion of important qualitative and quantitative (but not monetised) considerations associated with the Regulatory Impact Statement (RIS).

The Office of Best Practice Regulation in their Guidance Note on Cost-Benefit Analysis¹ states:

- ‘CBA [Cost Benefit Analysis] requires you to identify explicitly the ways in which the proposal makes individuals better or worse off.’²
- ‘You should report cost and benefit estimates within three categories:
 - monetised
 - quantified, but not monetised
 - qualitative, but not quantified or monetised.’³

Therefore, the following information is provided to assist CIE in their finalisation of their evaluation, and for the Department/Board’s consideration of the results. This information serves as an addendum to the report submitted on 31 August 2020⁴, drawing on the same dataset of 1,187 survey responses, and 45 in-depth interviews. A full report incorporating these and other new data will be made public in late October.

¹ Office of Best Practice Regulation, Department of the Prime Minister and Cabinet, Cost-Benefit Analysis Guidance Note, February 2016

² *ibid*, p4

³ *ibid*, p11

⁴ Wiesel, I (2020) *Lived experience and social, health and economic impacts of inaccessible housing: Report submitted to the Australian Building Codes Board RIS*, 31 August 2020.

1. Unmet demand for accessible homes

It was suggested in the 17th September meeting that there is no evidence of unmet demand for accessible homes in the general population, and that there is only anecdotal evidence that people with mobility restrictions who actively seek to build new accessible homes, face barriers preventing them from doing so. Addressing both concerns, we present evidence below that demand for accessible homes by people with mobility restrictions is being suppressed by structural market failure.

A small number of studies conducted outside Australia point to the difficulties experienced by people with disability when engaging with builders to construct new-build accessible homes^{5 6}. Evidence from our own survey and interviews in Australia also demonstrates that consumers with mobility restrictions who sought to build new accessible homes have faced significant barriers. Of 45 participants with disability we interviewed, 9 lived in homes that were built to be accessible and another participant was in the process of building an accessible home. Five of these ten participants reported difficulties negotiating their demand with builders, or errors made by builders, leading to reduced accessibility outcomes. This high proportion of participants who encountered such difficulties is indicative of systemic suppression of demand for accessible housing. We provide three illustrative examples as follows:

- **Perry:** Perry reported a building process that was protracted and draining, to a large part because of the difficulty working with builders. The first builder, whom he eventually replaced, tried to convince Perry to make-do with access to the back of his house only. When the plans were finally approved with the second builder, unbeknown to Perry subsequent modifications raised the house and rendered the front door inaccessible. Expensive, additional landscaping was then employed to make it “barely” accessible. Other expensive blunders – such as installing the basins at the wrong height or reducing the size of the elevator – demonstrate the challenge Perry faced finding builders who could deliver the accessibility features of the plan:

“this made some outside area inaccessible and some other areas dangerous, such as driveway for wheelchair transfer from chair to car (this now takes place in the street). Overall the house works and I spent some \$50k post handover to resolve some inaccessible areas... I am totally frustrated and a bit narky even after five years that some of the areas that I had agree to with the builder were changed during the build reducing my access to my carefully thought about and agreed to design”

- **Jenny:** In 2014, after many years renting places that were not fully accessible for her, she and her family decided to rebuild a home. Jenny described a difficult process including engagement with builders who didn’t follow the plans designed with the help of an accessibility consultant: “We built this house through a project home builder. We amended design to allow for wheelchair clearances. Not all plans were followed. Complete lack of knowledge on the building company’s part regarding universal and accessible design. We engaged an access consultant to go over the design for us.”
- **Kelly’s** father contracted builders to construct a new home that was supposed to be fully accessible, yet his plans were met with pushback from the builders who rejected critical accessible design features he asked for. This was extremely disappointing

⁵ Thomas, P. (2004). The experience of disabled people as customers in the owner occupation market. *Housing Studies*, 19(5), 781- 794.

⁶ Nicola Burns (2004) Negotiating difference: disabled people's experiences of housebuilders, *Housing Studies*, 19:5, 765-780

for Kelly who had been eagerly looking forward to finally be able to gather with her extended family in her father's home:

“It prevents me from spending time with family. My father is the only one who has had enough money to self-fund a new-build that was supposed to be accessible and he had nothing but pushback from the builders. Apparently, he kept being told we did it that way because it looks better. Very upsetting. I had been looking forward for months to an accessible home to visit my father in and where the family to could gather in a place big enough and accessible enough for us all.”

In our survey, several text responses to open-ended questions commented on similar difficulties working with builders to build new accessible homes:

- “Our experience with builders, knowledge of accessibility was extremely poor, and they weren't at all interested in finding out.”
- “It's like builders know they are supposed to put in accessible features, but they have no idea what's practical. Ramps are placed in unsafe areas, or don't give enough room to manoeuvre.”
- “I am in the process of building a new home. The entire purpose was to get a house that is accessible now and in the future as these are not readily available on the open market. Unfortunately, because accessibility is poorly understood I have ended up with a less accessible house than I requested. I requested flat access however there are still threshold steps. I requested sliding door tracks to be set into the concrete to create flat access however this was not done in error as it was done how it is usually done and now it is too late to fix. While I have cavity slider doors and requested adequate circulation space for a wheelchair this is questionable. I feel that if accessibility were standard then I would not have been in a position where I had little option to build and builders would have a greater understanding of accessibility requirements without it being a constant battle of what is usually done and what is required....It is not as easy as making an exception when required. The building industry has a very poor understanding of what is considered accessible. As such when people do go down the path of purpose built it quite often still ends up being inappropriate due to breaking the well-entrenched ways it has always been done.”
- “There are far too few project home builders prepared to make sustainability and accessibility both the absolute minimum and reasonably priced.”
- “My own sibling built a new home and I cannot access it. She didn't mean to exclude me- the builder just didn't know what to do to allow for my disability. Legislation would include guidelines and standards. Very much needed and should be a requirement.”

Several interview and survey participants described working with builders who were supportive, but then facing barriers to building accessible homes in the planning approval process:

“Our home was purpose built for me, so we saw how all the builders had to fight the council for common sense plan changes that people without disability would absolutely love: eg. a sloped garage slab that removes the step into the house.”

“My family has just built me a new fully accessible house for me, and it took a long time to get plan drawn up and to then get plans through council because what we required had to be discussed at great length to get what I needed. The builder was good in doing what we required but still had things he couldn't change because of the regulations.”

Further evidence of the unmet demand for accessible homes is found in our survey data showing that nearly half (48.5%) of people with high support needs living in inaccessible homes, and close to a third (31.2%) of those living in accessible homes, reported a desire to move home but being

limited by difficulty finding accessible housing elsewhere. Private renters were three times as likely to want to move home but be limited because of difficulty finding accessible housing than homeowners⁷.

⁷ Wiesel, 2020, p. 38 (tables 23 and 24)

2. Partly modified homes

CIE⁸ considers home modification as one of the ways the market, with policy assistance, already responds to the need for accessible housing. Drawing on SDAC data, CIE estimated that 16% of all people with disability, and 25% of all those with severe or profound disability, live in modified homes. People who live in modified homes are significantly over-represented in our sample (46.5%). However, our data does demonstrate that of those who live in homes that have been modified, most (84%) live in homes that have only been partly modified to meet their needs, and thus would benefit from additional accessible supply achieved through introduction of a minimum accessibility standard in the building code.⁹

Firstly, looking at prevalence of specific accessibility features, the data shows that ‘fully modified’ homes are almost as accessible as homes built to accessible standards in the first place, but slightly inferior with respect to features that require more structural modifications (e.g. 7.5% lower rates of step-free paths to entrance, 8.9% lower rates of internal doors and corridors that facilitate comfortable and unimpeded movement, 8% lower rates of reinforced walls around the toilet, shower and bath that may allow future installation of grabrails).

Secondly, ‘partly modified’ homes are significantly inferior in their accessibility to those built accessible (e.g. 30.6% lower rates of step-free paths to entrance, 48.8% lower rates of internal doors and corridors that facilitate comfortable and unimpeded movement, 18.7% lower rates of reinforced walls around the toilet, shower and bath that may allow future installation of grabrails). On average, partly modified homes contain 19.4% fewer accessibility features compared to homes built to accessible standard.

Table 1: Does your home contain any of the following features?

	Built accessible		Fully modified		Inaccessible		Partly modified	
	C	%	C	%	C	%	C	%
Safe continuous step-free path from the street or parking to the entrance	129	79.1%	48	71.6%	66	26.3%	172	48.5%
At least one step-free entrance	94	57.7%	40	59.7%	59	23.5%	181	51.0%
Internal doors and corridors that facilitate comfortable and unimpeded movement	141	86.5%	52	77.6%	65	25.9%	134	37.7%
A toilet on entry level that is easy to access	141	86.5%	56	83.6%	128	51.0%	243	68.5%
A bathroom that contains a hobless shower recess	129	79.1%	56	83.6%	38	15.1%	206	58.0%
Grabrails in the toilet, shower or bath	93	57.1%	41	61.2%	60	23.9%	238	67.0%
Reinforced walls around the toilet, shower and bath that may allow future installation of grabrails	64	39.3%	21	31.3%	20	8.0%	73	20.6%
Stairways with a handrail	30	18.4%	11	16.4%	70	27.9%	70	19.7%
Stairways without a handrail	4	2.5%	2	3.0%	41	16.3%	16	4.5%

⁸ CIE, 2020, p. 36-7

⁹ Wiesel, 2020, p. 15 (table 4)

When measuring the impacts of inaccessibility on ability to perform core activities, on support needs, on mental health and risk of injury, partly modified homes perform far worse than homes built accessible. Compared with those living in homes built accessible, those living in partly modified homes are:

- 32.8% (high support needs) or 46.2% (low support needs) more likely to have limitations entering/exiting the house
- 25.5% (high support needs) or 44.4% (low support needs) more likely to have limitations in internal mobility
- 37.9% (high support needs) or 42.1% (low support needs) more likely to have limitations in personal care
- 43% (high support needs) or 55.5% (low support needs) more likely to have limitations in home care
- 34.7% (low support needs) or 44.3% (high support needs) more likely to be limited by their homes in their ability to have paid employment.
- 17.6% (low support needs) or 44.0% (high support needs) more likely to report worsened mental health due to the inaccessibility of their home.
- 13.4% (low support needs) or 20.3% (high support needs) more likely to be concerned about risk of injury due to the inaccessibility of their home.
- 20.2% (high support needs) more likely to be concerned about being forced to move to a nursing home due to the inaccessibility of their home.
- 13.3% (low support needs) or 29.7% (high support needs) more likely to report increased need for paid support due to the inaccessibility of their home.
- 29.4% (low support needs) or 38.4% (high support needs) more likely to report increased need for unpaid support due to the inaccessibility of their home.

Table 2: Does your home limit your ability in...?

<i>Low support needs</i>	Built accessible	Fully modified	Inaccessible	Partly modified	Total
Entering and exiting the house	13.5%	0.0%	74.0%	46.3%	48.4%
Moving inside the house	0.0%	0.0%	52.2%	25.5%	25.7%
Personal Care	9.8%	0.0%	72.9%	47.7%	48.2%
Home care	29.7%	25.0%	77.4%	72.7%	65.9%
	41	10	93	88	226
<i>High support needs</i>	Built accessible	Fully modified	Inaccessible	Partly modified	Total
Entering and exiting the house	4.7%	8.0%	87.8%	50.9%	48.4%
Moving inside the house	0.9%	3.8%	82.6%	45.3%	41.0%
Personal Care	8.1%	16.7%	87.0%	50.2%	49.7%
Home care	31.6%	38.8%	87.9%	87.1%	73.2%
	111	54	169	251	585

3. Reduced support needs

In both their report, and the follow up meeting with MDI, CIE expressed scepticism as to the relevance of Carnemolla and Bridge's¹⁰ evidence that housing with accessibility features reduces care needs. The CIE questioned whether the sample investigated by Carnemolla and Bridge is representative of the general population with mobility limitations living in inaccessible housing. It also argued Carnemolla and Bridge's findings relate to home modifications, which are tailored to the specific needs of the recipient and are not always aligned with the proposed universal accessibility standards for new build.

Addressing both CIE concerns, we reiterate here that Wiesel's report presented data on a much larger sample of participants than those examined by Carnemolla and Bridge, and confirms their findings on reduction in support for people living in both newly built accessible housing and fully modified homes.

For people with low support needs, 18.9% of those living in homes built accessible, and 25% of those living in fully modified homes, reported decreased support needs thanks to the accessibility of their home. In contrast, 38.9% of those living in homes not built or modified for accessibility, and 45.7% of those whose homes were only partly modified, reported increased need for paid disability support due to the inaccessibility of their home. Similar results were found in respect for decrease/increase in unpaid support.

For people with high support needs, 23.9% of those living in homes built accessible, and 21.2% of those living in homes fully modified, reported decreased support needs thanks to the accessibility of their home. In contrast, 73.3% of those living in homes not built or modified for accessibility, and 60.9% of those whose homes were only partly modified, reported increased need for paid disability support (an impact significantly bigger compared to those with low support needs). One striking result is that 32.4% of people with high support needs living in homes built accessible reported a decline in need for unpaid support.

Although there was a proportion of people living in homes built accessible or fully modified who reported increased support needs due to the design of their homes – indicative that even 'accessible' homes can be difficult to live in – their proportions were substantially lower compared to those living in homes that were only partly or not at all accessible, and offset by the numbers of those who reported reduced support needs.

Furthermore, our findings suggest the range of everyday activities for which paid support is provided, and which can be reduced by accessible housing, is wider than that estimated in CIE's report. The CIE has focused exclusively on paid and unpaid assistance with mobility tasks¹¹. In contrast, our analysis shows that inaccessible housing also significantly increases need for assistance with self-care and other domestic activities.

As discussed in the previous section, in estimating impact on support needs, CIE excluded those living in housing that has already been modified due to disability or age, assuming that modified housing is already accessible¹². Again, our analysis shows that most people whose homes have been modified, consider these modifications to address their needs only partly, and they too require additional paid or unpaid support due to inaccessible homes:

¹⁰ Carnemolla, P. and Bridge, C., Housing Design and Community Care: How Home Modifications Reduce Care Needs of Older People and People with Disability, *International Journal of Environmental Research and Public Health*, 2019.

¹¹ CIE, 2020, p. 140

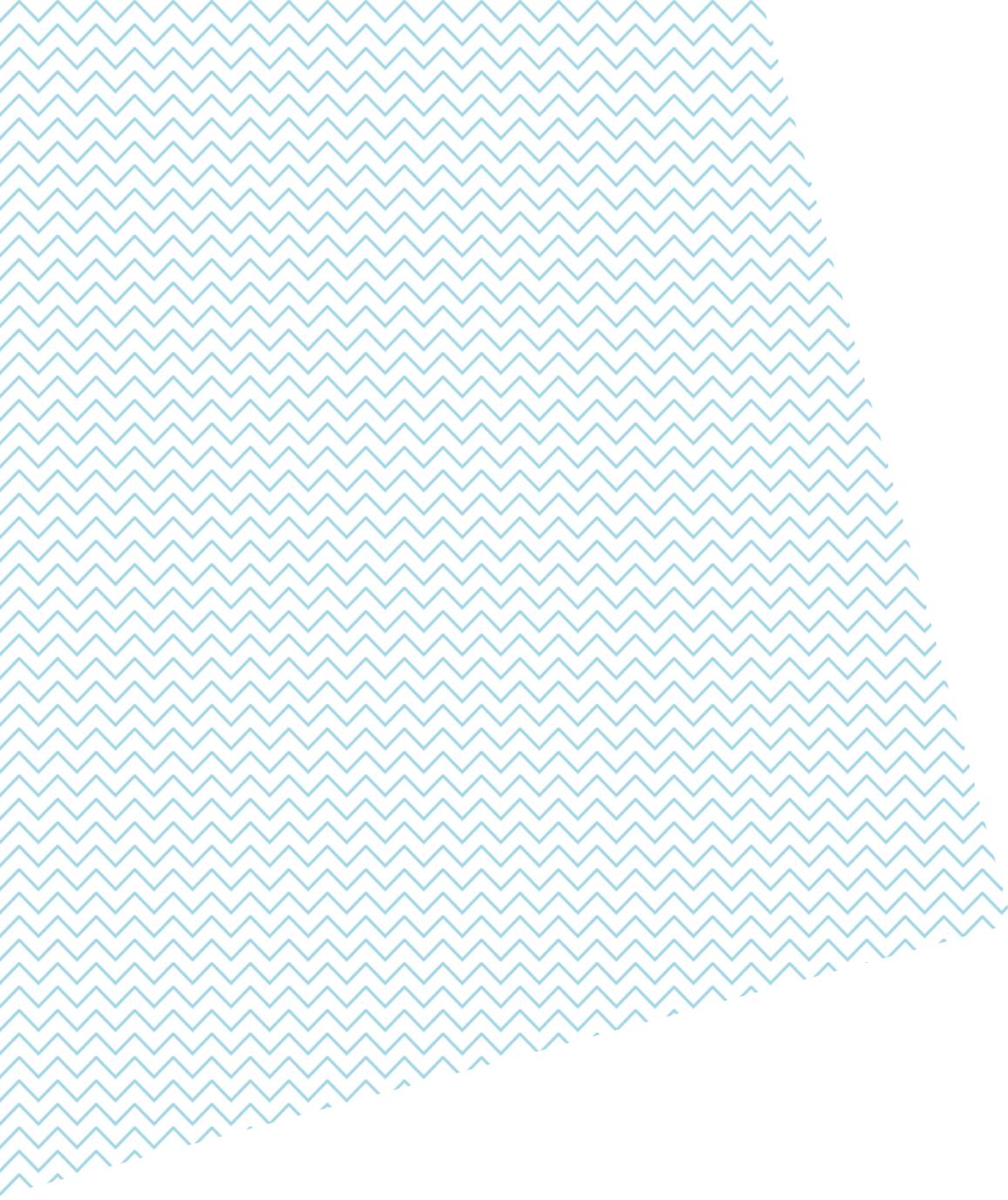
¹² CIE, 2020, p. 140

- Compared with those living in homes built accessible, those living in partly modified homes were 13.3% (low support needs) or 29.7% (high support needs) more likely to report increased need for paid support due to the inaccessibility of their home.
- Compared with those living in homes built accessible, those living in partly modified homes were 29.4% (low support needs) or 38.4% (high support needs) more likely to report increased need for unpaid support due to the inaccessibility of their home.

Table 3: To what extent does the design of your current home affect your need for paid disability support or informal care?

		My need for paid disability support has...				
		Increased	Neither	Decreased	Total	
		R N %	R N %	R N %	R N %	Count
Low support needs	Built accessible	32.4%	48.6%	18.9%	100%	37
	Fully modified	0.0%	75.0%	25.0%	100%	8
	Inaccessible	38.9%	57.9%	3.2%	100%	95
	Partly modified	45.7%	49.4%	4.9%	100%	81
	Total	38.9%	53.8%	7.2%	100%	221
High support needs	Built accessible	31.2%	45.0%	23.9%	100%	109
	Fully modified	30.8%	48.1%	21.2%	100%	52
	Inaccessible	73.3%	23.0%	3.7%	100%	161
	Partly modified	60.9%	31.9%	7.3%	100%	248
	Total	56.0%	33.3%	10.7%	100%	570

		My need for informal care has...				
		Increased	Neither	Decreased	Total	
		R N %	R N %	R N %	R N %	Count
Low support needs	Built accessible	25.6%	56.4%	17.9%	100%	39
	Fully modified	11.1%	66.7%	22.2%	100%	9
	Inaccessible	47.8%	48.9%	3.3%	100%	90
	Partly modified	55.0%	37.5%	7.5%	100%	80
	Total	45.0%	46.8%	8.3%	100%	218
High support needs	Built accessible	22.9%	44.8%	32.4%	100%	105
	Fully modified	28.3%	52.8%	18.9%	100%	53
	Inaccessible	75.8%	19.9%	4.3%	100%	161
	Partly modified	61.3%	32.9%	5.8%	100%	243
	Total	55.2%	33.3%	11.6%	100%	562



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