

## Appendix

**Table A.** Household vehicle ownership category recalibrated parameters

| Model                  | Parameter | Description                                  | Okanagan Value | Vancouver Value |
|------------------------|-----------|----------------------------------------------|----------------|-----------------|
| First Vehicle Purchase | C1P1      | Constant                                     | 0.68           | 1.28            |
|                        | C1P2      | No. of bikes                                 | -0.32          | -0.63           |
|                        | C1P3      | Birth of a child- same year or 1 year before | -2.1           | -3.37           |
|                        | C1P4      | Residential move- same year                  | -0.54          | -0.43           |
|                        | C1P5      | Residential move- 1 year before              | -1.57          | -2.25           |
|                        | C1P6      | Addition of a job- same year                 | -0.38          | -0.08           |
|                        | C1P7      | Change of a job- same year                   | -1.12          | -1.41           |
|                        | C1P8      | Loss of a job- same year                     | 0.71           | 0.71            |
|                        | C1P9      | Land use index                               | 0.49           | 0.17            |
|                        | C1P10     | Bus stop distance < 1 km                     | -0.48          | -0.73           |
|                        | C1P11     | Employment rate                              | -0.007         | -0.003          |
|                        | C1P12     | No. of bus stops                             | 0.018          | 0.01            |
|                        | C1P13     | No. of transit pass                          | 0.28           | 0.33            |
|                        | C1P14     | Income $\geq$ 100,000                        | -0.64          | -0.19           |
|                        | C1P15     | Log of % residential area                    | -0.13          | -0.17           |
|                        | C1P16     | No. of children                              | -0.0008        | -0.001          |
|                        | C1P17     | No. of adults                                | -1.5           | -2.25           |
|                        | C1P18     | Dwelling type: apartment                     | -1.9           | -2.06           |
|                        | C1P19     | Dwelling type: townhouse                     | 2.21           | 1.97            |
|                        | C1P20     | Dwelling type: semi-detached                 | -0.77          | -1.09           |
| Addition of a Vehicle  | C1P21     | Constant                                     | -0.84          | -1.48           |
|                        | C1P22     | Birth of a child- same year or 1 year before | -0.25          | -0.13           |
|                        | C1P23     | Residential move- same year                  | -0.36          | -0.63           |
|                        | C1P24     | Addition of a job- same year                 | 0.29           | 0.28            |
|                        | C1P25     | % residential area                           | 0.73           | 1.20            |
|                        | C1P26     | Bus stop distance < 1 km                     | -0.04          | -0.06           |
|                        | C1P27     | No. of bikes>0                               | -0.28          | -0.36           |
|                        | C1P28     | Income $\geq$ 100,000                        | -0.31          | -0.21           |
|                        | C1P29     | Member move in or marriage same year         | -0.36          | -0.36           |
|                        | C1P30     | Member move in or marriage next year         | -0.36          | -0.35           |
|                        | C1P31     | Income 50,000-100,000                        | 0.9            | 0.65            |
|                        | C1P32     | Dwelling type: townhouse                     | -0.78          | -0.65           |
| Trading of a Vehicle   | C1P33     | Constant                                     | -0.67          | -1.30           |
|                        | C1P34     | Residential move- same year                  | 0.58           | 0.55            |
|                        | C1P35     | Addition of a job- same year                 | -0.88          | -0.51           |
|                        | C1P36     | Land use index                               | 0.29           | 0.03            |
|                        | C1P37     | % residential area                           | -0.32          | -0.37           |
|                        | C1P38     | No. of bikes>0                               | -0.97          | -0.02           |
|                        | C1P39     | Income $\geq$ 100,000                        | 0.33           | 0.30            |
|                        | C1P40     | No. of children                              | 0.38           | 0.10            |
|                        | C1P41     | Member move in or marriage same year         | -0.0011        | -0.0001         |
|                        | C1P42     | Vehicle per adult                            | -0.11          | -0.15           |
|                        | C1P43     | No. of children (under 10)                   | 2.6            | 4.24            |
|                        | C1P44     | Dwelling type: apartment                     | 0.75           | 1.10            |
| Disposing of a Vehicle | C1P45     | Constant                                     | -0.81          | -0.66           |
|                        | C1P46     | Residential move- same year                  | -0.8           | -1.53           |
|                        | C1P47     | Addition of a job- same year                 | 0.22           | 0.21            |
|                        | C1P48     | No. of transit pass>0                        | 0.1            | 0.09            |
|                        | C1P49     | Income $\geq$ 100,000                        | 1.53           | 1.24            |
|                        | C1P50     | Number of individuals in the household       | -1.1           | -2.19           |
|                        | C1P51     | Owned house                                  | -0.16          | -0.001          |

**Table B.** Vehicle body type category recalibrated parameters

| Model                              | Parameter | Description                     | Okanagan Value | Vancouver Value |
|------------------------------------|-----------|---------------------------------|----------------|-----------------|
| First Vehicle Body: Subcompact     | C2P1      | Constant for Year 1-2           | -1.95          | -3.46           |
|                                    | C2P2      | Constant for Year 3             | -1.985         | -0.01           |
|                                    | C2P3      | Constant for Year 4             | -1.6           | -2.72           |
|                                    | C2P4      | Constant for Year 5 and Onwards | -1.95          | -3.48           |
|                                    | C2P5      | Birth of a child- same year     | -1.27          | -1.23           |
|                                    | C2P6      | Member move in- same year       | 1.56           | 1.02            |
|                                    | C2P7      | Land use index                  | 0.2            | 0.23            |
|                                    | C2P8      | Commute distance < 3 km         | 2.3            | 3.72            |
|                                    | C2P9      | Income 30,000-49,999            | 0.25           | 0.49            |
|                                    | C2P10     | Income 80,000-99,999            | -2.33          | -4.33           |
|                                    | C2P11     | No. of children =1              | -3.06          | -5.85           |
|                                    | C2P12     | No. of children =2              | -0.44          | -0.62           |
|                                    | C2P13     | Dwelling type: semi-detached    | -0.25          | -0.34           |
| First Vehicle Body: Compact        | C2P14     | Constant for Year 1-2           | -2.3           | -1.51           |
|                                    | C2P15     | Constant for Year 3             | -2.33          | -4.14           |
|                                    | C2P16     | Constant for Year 4             | -1.85          | -3.11           |
|                                    | C2P17     | Constant for Year 5 and Onwards | -1.88          | -2.20           |
|                                    | C2P18     | Member move in- same year       | 0.77           | 1.38            |
|                                    | C2P19     | Addition of a job- same year    | 1.42           | 2.67            |
|                                    | C2P20     | Urban core distance < 3 km      | 1.8            | 0.82            |
|                                    | C2P21     | Bus stop distance < 1 km        | 0.27           | 0.52            |
|                                    | C2P22     | Income 30,000-49,999            | 0.35           | 0.12            |
|                                    | C2P23     | Income 100,000-149,999          | -0.2           | -0.15           |
|                                    | C2P24     | No. of children =1              | -1.02          | -0.10           |
|                                    | C2P25     | No. of children =2              | -0.97          | -0.46           |
|                                    | C2P26     | Dwelling type: small apartment  | 0.75           | 0.03            |
| First Vehicle Body: Midsize/Large  | C2P27     | Constant for Year 1-2           | 0.45           | 0.71            |
|                                    | C2P28     | Constant for Year 3             | 0.33           | 0.63            |
|                                    | C2P29     | Constant for Year 4             | 0.15           | 0.13            |
|                                    | C2P30     | Constant for Year 5 and Onwards | 0.25           | 0.49            |
|                                    | C2P31     | Member move in- same year       | 1.21           | 2.01            |
|                                    | C2P32     | Addition of a job- same year    | 1.55           | 3.07            |
|                                    | C2P33     | Land use index                  | -0.4           | -0.74           |
|                                    | C2P34     | Income 30,000-49,999            | -0.13          | -0.21           |
|                                    | C2P35     | Income 100,000-149,999          | 0.3            | 0.07            |
|                                    | C2P36     | Income $\geq$ 150,000           | 0.7            | 1.09            |
|                                    | C2P37     | Rented house                    | 1.77           | 1.98            |
|                                    | C2P38     | Dwelling type: single-detached  | 0.28           | 0.37            |
|                                    | C2P39     | Dwelling type: small apartment  | -0.25          | -0.28           |
| First Vehicle Body: SUV            | C2P40     | Constant for Year 1-2           | 0.455          | 0.08            |
|                                    | C2P41     | Constant for Year 3             | 0.31           | 0.51            |
|                                    | C2P42     | Constant for Year 4             | 0.31           | 0.59            |
|                                    | C2P43     | Constant for Year 5 and Onwards | 0.38           | 0.43            |
|                                    | C2P44     | Birth of a child- same year     | 0.74           | 0.35            |
|                                    | C2P45     | Member move in- same year       | -2.07          | -3.82           |
|                                    | C2P46     | Urban core distance < 3 km      | -0.44          | -0.82           |
|                                    | C2P47     | Bus stop distance < 1 km        | -0.45          | -0.27           |
|                                    | C2P48     | Income 30,000-49,999            | -0.23          | -0.19           |
|                                    | C2P49     | Income 50,000-79,999            | -0.15          | -0.005          |
|                                    | C2P50     | No. of children =1              | 1.37           | 2.53            |
|                                    | C2P51     | No. of children =2              | -0.59          | -0.87           |
|                                    | C2P52     | Rented house                    | -0.3           | -0.40           |
|                                    | C2P53     | Dwelling type: semi-detached    | 0.27           | 0.38            |
| Non-First Vehicle Body: Subcompact | C2P54     | Constant                        | -0.45          | -0.001          |
|                                    | C2P55     | Currently own subcompact        | 1.63           | 0.63            |
|                                    | C2P56     | Currently own SUV               | -0.6           | -0.65           |
|                                    | C2P57     | % of residential area           | -3.17          | -2.06           |
|                                    | C2P58     | Income $\leq$ 50,000            | 0.9            | 0.91            |
|                                    | C2P59     | Income 50,000-79,999            | 0.85           | 1.52            |

| Model                                 | Parameter | Description                  | Okanagan Value | Vancouver Value |
|---------------------------------------|-----------|------------------------------|----------------|-----------------|
| Non-First Vehicle Body: Compact       | C2P60     | Presence of children: no     | 0.13           | 0.01            |
|                                       | C2P61     | Log of No. of adults         | 2.24           | 4.26            |
|                                       | C2P62     | Rented house                 | 0.24           | 0.01            |
|                                       | C2P63     | Constant                     | -2.18          | -3.36           |
|                                       | C2P64     | Currently own compact        | 2.41           | 3.20            |
|                                       | C2P65     | Owens a bike                 | 0.74           | 0.22            |
|                                       | C2P66     | Income $\leq$ 50,000         | 0.32           | 0.41            |
|                                       | C2P67     | Income 80,000-99,999         | 0.29           | 0.33            |
|                                       | C2P68     | Presence of children: no     | 0.44           | 0.67            |
|                                       | C2P69     | Rented house                 | 0.44           | 0.03            |
| Non-First Vehicle Body: Midsize/Large | C2P70     | Dwelling type: semi-detached | -1.42          | -1.63           |
|                                       | C2P71     | Dwelling type: apartment     | 1.01           | 0.01            |
|                                       | C2P72     | Constant                     | -0.99          | -0.77           |
|                                       | C2P73     | Currently own midsize/large  | 2.21           | 0.77            |
|                                       | C2P74     | Currently own truck/van      | -1.34          | -1.30           |
|                                       | C2P75     | No. of vehicles              | 0.29           | 0.03            |
|                                       | C2P76     | Land use index               | -0.55          | -0.08           |
|                                       | C2P77     | Income 80,000-99,999         | 0.72           | 0.30            |
|                                       | C2P78     | Rented house                 | 0.22           | 0.23            |
|                                       | C2P79     | Dwelling type: semi-detached | -0.99          | -1.97           |
| Non-First Vehicle Body: SUV           | C2P80     | Dwelling type: apartment     | 0.32           | 0.11            |
|                                       | C2P81     | Constant                     | -1.2           | -1.12           |
|                                       | C2P82     | Currently own SUV            | 2.5            | 1.93            |
|                                       | C2P83     | Currently own truck/van      | -1.15          | -2.12           |
|                                       | C2P84     | No. of vehicles              | 0.4            | 0.51            |
|                                       | C2P85     | Owens a bike                 | -0.07          | -0.11           |
|                                       | C2P86     | Land use index               | -0.55          | -0.96           |
|                                       | C2P87     | Income 80,000-99,999         | 0.26           | 0.33            |
|                                       | C2P88     | No. of children              | 0.62           | 0.52            |
|                                       | C2P89     | Dwelling type: semi-detached | 0.33           | 0.56            |

**Table C.** Vehicle fuel type category recalibrated parameters

| Model                            | Parameter | Description                                   | Okanagan Value | Vancouver Value |
|----------------------------------|-----------|-----------------------------------------------|----------------|-----------------|
| Non-First Vehicle Fuel: Gasoline | C3P1      | Constant                                      | 5.8            | 9.35            |
|                                  | C3P2      | Currently own AFV                             | -1.51          | -0.03           |
|                                  | C3P3      | Vehicle per adult                             | -1.3           | -2.37           |
|                                  | C3P4      | Nearest dining place in km                    | -0.77          | -0.68           |
|                                  | C3P5      | Income $\leq$ 50,000                          | 1.25           | 1.38            |
|                                  | C3P6      | Income 50,000-79,999                          | 2.16           | 4.24            |
|                                  | C3P7      | Dwelling type: single-detached                | 1.97           | 2.54            |
| Non-First Vehicle Fuel: AFV      | C3P8      | Constant                                      | -0.26          | -0.02           |
|                                  | C3P9      | Currently own gas vehicle                     | -0.66          | -0.06           |
|                                  | C3P10     | Log Vehicle Price                             | -2.00          | -3.13           |
|                                  | C3P11     | Vehicle per adult                             | 1.03           | 1.24            |
|                                  | C3P12     | Owens a bike                                  | 0.52           | 1.03            |
|                                  | C3P13     | Owens a transit pass                          | 0.75           | 1.42            |
|                                  | C3P14     | Log Commute distance in km                    | 1.47           | 1.31            |
|                                  | C3P15     | Nearest school distance in km                 | 1.27           | 0.72            |
|                                  | C3P16     | Nearest dining place distance in km           | 0.67           | 1.11            |
|                                  | C3P17     | Income $\geq$ 150,000                         | -3.63          | -2.64           |
|                                  | C3P18     | Log of Average age of adults in the household | -1.56          | -0.01           |

**Table D.** Vehicle vintage type category recalibrated parameters

| Model                           | Parameter | Description                                   | Okanagan Value | Vancouver Value |
|---------------------------------|-----------|-----------------------------------------------|----------------|-----------------|
| First Vehicle Vintage: New      | C4P1      | Constant for Year 1-2                         | 0.37           | 0.52            |
|                                 | C4P2      | Constant for Year 3                           | 0.45           | 0.12            |
|                                 | C4P3      | Constant for Year 4                           | 0.52           | 0.01            |
|                                 | C4P4      | Constant for Year 5 and Onwards               | 0.53           | 0.79            |
|                                 | C4P5      | Birth of a child- same year                   | 0.94           | 1.72            |
|                                 | C4P6      | Member move in- same year                     | -0.72          | -0.03           |
|                                 | C4P7      | Addition of a job- same year                  | 0.81           | 0.52            |
|                                 | C4P8      | Land use index                                | -0.45          | -0.87           |
|                                 | C4P9      | Bus stop distance < 1 km                      | -0.68          | -0.41           |
|                                 | C4P10     | Income < 50,000                               | -0.09          | -0.06           |
|                                 | C4P11     | Income 50,000-79,999                          | -0.1           | -0.04           |
|                                 | C4P12     | Income $\geq$ 150,000                         | 1.67           | 0.94            |
|                                 | C4P13     | Rented house                                  | -0.65          | -1.26           |
|                                 | C4P14     | Dwelling type: semi-detached                  | 0.45           | 0.28            |
|                                 | C4P15     | Dwelling type: apartment                      | 0.68           | 0.92            |
|                                 | C4P16     | Dwelling type: townhouse                      | 0.75           | 0.31            |
| Non-First Vehicle Vintage: Used | C4P17     | Constant                                      | -1.8           | -2.59           |
|                                 | C4P18     | Currently own used                            | 0.09           | 0.07            |
|                                 | C4P19     | Currently own old                             | -0.59          | -0.56           |
|                                 | C4P20     | No. of vehicles                               | 1.57           | 0.65            |
|                                 | C4P21     | Income 80,000-99,999                          | 0.57           | 1.12            |
|                                 | C4P22     | Log of Average age of adults in the household | -0.62          | -0.73           |
|                                 | C4P23     | Owned house                                   | 0.37           | 0.42            |
|                                 | C4P24     | Dwelling type: single-detached                | 0.09           | 0.08            |
|                                 | C4P25     | Dwelling type: townhouse                      | -0.49          | -0.81           |
|                                 | C4P26     | Dwelling type: apartment                      | -0.1           | -0.05           |
| Non-First Vehicle Vintage: New  | C4P27     | Constant                                      | -1.37          | -0.73           |
|                                 | C4P28     | Currently own new                             | 3.25           | 1.94            |
|                                 | C4P29     | Currently own used                            | 0.23           | 0.09            |
|                                 | C4P30     | Currently own old                             | -3.16          | -5.41           |
|                                 | C4P31     | No. of vehicles                               | -0.44          | -0.34           |
|                                 | C4P32     | Income $\geq$ 100,000                         | 0.28           | 0.18            |
|                                 | C4P33     | Log of Average age of adults in the household | 0.38           | 0.35            |
|                                 | C4P34     | Dwelling type: owned & single-detached        | 0.24           | 0.17            |
|                                 | C4P35     | Dwelling type: townhouse                      | -1.13          | -1.22           |

**Table E.** Vehicle technology type category recalibrated parameters

| Model                                                  | Parameter | Description                                                      | Okanagan Value | Vancouver Value |
|--------------------------------------------------------|-----------|------------------------------------------------------------------|----------------|-----------------|
| First Vehicle Presence of Advanced Technology: Yes     | C5P1      | Constant for Year 1-2                                            | -4.74          | -4.32           |
|                                                        | C5P2      | Constant for Year 3                                              | -4.91          | -7.69           |
|                                                        | C5P3      | Constant for Year 4                                              | -5.01          | -2.18           |
|                                                        | C5P4      | Constant for Year 5 and Onwards                                  | -4.86          | -9.14           |
|                                                        | C5P5      | Birth of a child or member move in- same year                    | 0.67           | 1.02            |
|                                                        | C5P6      | Change of job- same year                                         | 0.74           | 0.51            |
|                                                        | C5P7      | Land use index                                                   | -1.89          | -1.36           |
|                                                        | C5P8      | Commute distance < 3 km                                          | -0.88          | -0.63           |
|                                                        | C5P9      | Income < 30,000                                                  | -0.11          | -0.06           |
|                                                        | C5P10     | Owned house                                                      | 1.92           | 1.37            |
|                                                        | C5P11     | Dwelling type: single-detached                                   | 4.35           | 7.41            |
|                                                        | C5P12     | Dwelling type: apartment                                         | 4.48           | 2.84            |
| Non-First Vehicle Presence of Advanced Technology: Yes | C5P13     | Constant                                                         | -0.75          | -1.02           |
|                                                        | C5P14     | No. of smartphones per person                                    | 0.24           | 0.18            |
|                                                        | C5P15     | No. of laptops per person                                        | 0.6            | 0.95            |
|                                                        | C5P16     | Own advanced technology in current and previously owned vehicles | 0.81           | 0.63            |
|                                                        | C5P17     | Current and previously own AFV                                   | 1.56           | 2.26            |
|                                                        | C5P18     | Income 80,000-99,999                                             | 0.18           | 0.29            |
|                                                        | C5P19     | Income $\geq$ 150,000                                            | 1.15           | 0.77            |
|                                                        | C5P20     | Log of Average age of adults in the household                    | -0.3           | -0.45           |
|                                                        | C5P21     | Dwelling type: owned & single-detached                           | 0.56           | 0.64            |
|                                                        | C5P22     | Rented house                                                     | -0.17          | -0.09           |