

■ **Results of ART3 (Auckland Regional Transport Model) Sensitivity Tests**

<b>Attribute</b>	<b>Response/Elasticity</b>	<b>Comparative Values</b>	<b>Comments</b>
<b>Public transport fares</b>	$\epsilon$ (trips) : -0.24 $\epsilon$ (pass km) : -0.36	WTSM: $\epsilon$ (trips) : -0.20 $\epsilon$ (pass km) : -0.29  International range: -0.1 to -0.6 (PDFH: short & medium distance urban rail: -0.3 to -0.6) Transfund patronage funding work: -0.2 to -0.45	Within the expected range.
<b>PT In-vehicle time:</b> all PT  bus only  rail only	$\epsilon$ (trips) : -0.24 $\epsilon$ (pass km) : -0.49  $\epsilon$ (bus trips) : -0.47 $\epsilon$ (bus pass km) : -0.81  $\epsilon$ (rail/ferry trips)* : -0.57 $\epsilon$ (rail pass km) : -0.91  * includes ferry trips as no separate rail demand	WTSM: $\epsilon$ (trips) : -0.20 $\epsilon$ (pass km) : -0.39  $\epsilon$ (bus trips) : -0.35 $\epsilon$ (bus pass km) : -0.85  $\epsilon$ (rail trips) : -0.45 $\epsilon$ (rail pass km) : -0.61  PDFH rail: -0.2 to -0.8 (inferred)	These are within the expected ranges.
<b>PT Service frequency:</b> all PT  bus only  rail only	$\epsilon$ (trips) : +0.21 $\epsilon$ (pass km) : +0.32  $\epsilon$ (bus trips) : +0.28 $\epsilon$ (bus pass km) : +0.41  $\epsilon$ (rail/ferry trips)* : +0.22 $\epsilon$ (rail pass km) : +0.26  * includes ferry trips as no separate rail demand	WTSM: $\epsilon$ (trips) : +0.10 $\epsilon$ (pass km) : +0.16  $\epsilon$ (trips) : +0.20 $\epsilon$ (pass km) : +0.37  $\epsilon$ (trips) : +0.26 $\epsilon$ (pass km) : +0.26  Transfund patronage funding work: +0.2 to +0.7 PDFH rail: +0.15 to +0.6 (inferred)	These are within the expected ranges.
<b>Car fuel cost</b>	$\epsilon$ (trips) : -0.03 $\epsilon$ (vkt) : -0.13	WTSM (operating costs): $\epsilon$ (trips) : -0.05 $\epsilon$ (vkt) : -0.26  Typical international fuel price elasticities: -0.1 to -0.3	With urban trips being generally shorter, the dispersed travel patterns and low PT share in Auckland there is an argument for lower fuel price elasticities. The results appear to be consistent with expectations.
<b>Car journey time</b>	$\epsilon$ (trips) : -0.06 $\epsilon$ (vkt) : -0.26	WTSM: $\epsilon$ (trips) : -0.07 $\epsilon$ (vkt) : -0.28  EEM: -0.2 to -0.25 (vkt)	$\epsilon$ (vkt) is within the expected range
<b>HBW parking costs</b>	-0.1% in total car trips -1% in HBW car trips to zones with parking costs		This level of response appears reasonable.

PDFH: British Rail Passenger Demand Forecasting Handbook

WTSM: Wellington Transport Strategy Model

EEM: New Zealand Economic Evaluation Manual

Transfund patronage funding work: a NZ public transport study