

Schedule 1 – Part 3

City-wide Infrastructure

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Calculation of the City-wide Network Infrastructure Development Contribution

Reference: Local Government Act 2002: Section 198, Schedule 13

1.0 City-wide infrastructure

1.1 Introduction

The basis for the requirement of development contributions for city-wide network infrastructure is the effects of development, in particular the demand for additional and increased capacity assets created by the increase in development in the city.

In order to make adequate and timely provision for services required as a result of development in the city, development contributions to fund growth-related infrastructure are required. The methodology set out below supports the requirements of the development contribution policy required under Section 102(4) of the Local Government Act 2002 (LGA 2002).

The development contribution for city-wide network infrastructure comprises various groups of activities or service components. The development contribution replaces the previous Building Impact Fee (BIF). For ease of use the development contribution for city-wide network infrastructure is referred to as a BIF.

These activities are:

- Water Supply
- Wastewater
- Transportation
- Reserves and Community Infrastructure

City-wide network infrastructure includes the following:

Water supply:

- Raw water abstraction facilities
- Pumping stations
- Conveyance mains
- Treatment facilities
- Storage facilities

Wastewater:

- Treatment facilities
- Disposal facilities

Transportation:

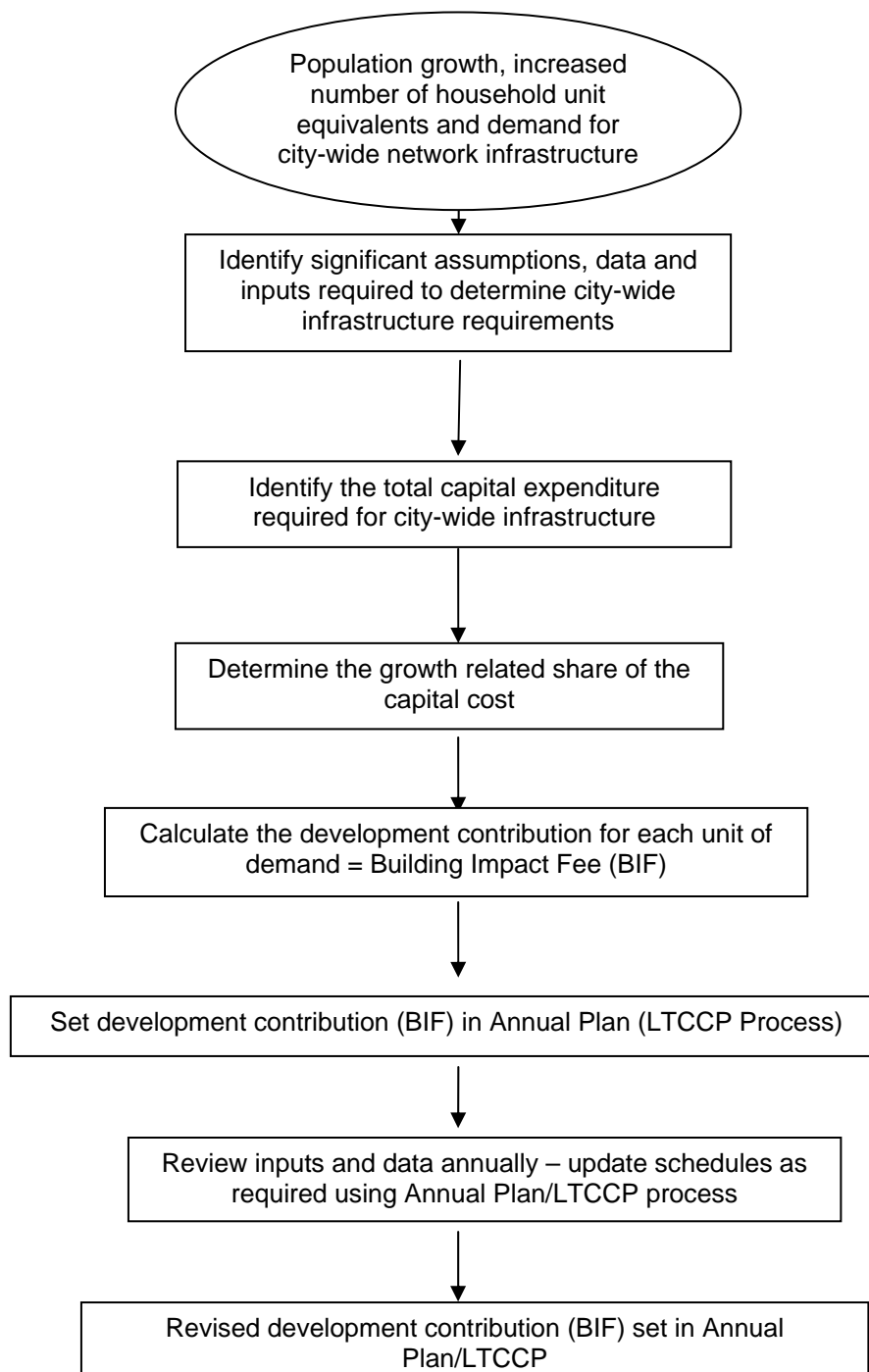
- Traffic lights
- Travel demand management
- Walkways/cycleways
- Land purchases
- Road construction
- Pedestrian underpasses/overbridges

Reserves and Community Infrastructure:

- Active reserve purchase and development
- Community facilities network
- Subregional park purchase and development
- Libraries network
- Baywave TECT Aquatic and Leisure Centre
- Indoor Sport and Exhibition Centre

Development Contribution (BIF) Methodology (Refer Schedule 13, LGA 2002)

The flowchart provides an overview of the methodology used to calculate the City-wide Network Infrastructure Development Contribution (BIF).



1.2 Significant Assumptions

1.2.1 Assumptions and Data Inputs Summary

Water Supply, Wastewater and Transportation

The calculation of a development contribution for city-wide network infrastructure (building impact fee) entails the identification and calculation of the growth-related infrastructure required during a planning period. Once the capital projects are identified and quantified, the growth-related capital costs that are attributable to each unit of demand are calculated based on a number of inputs and assumptions summarised in Table 1 below.

Table 1 – Assumptions and Data Inputs

Input/Adjustment Factor	Current Data / Factor	Abbreviation in Formula
Assumptions:		
Water Supply – Peak Day Demand	500 litres/head/day (l/h/d)	
Wastewater loading	200 l/h/d	
Planning period	2001 to 2021 in most case	
Residential household unit equivalents (2001-2021)	24,340	
Household occupancy	2.3 (by 2021)	
Non-residential household unit equivalents (2001-2021)	4,055 Water 5,147 Wastewater 21,436 Transportation	
Total household unit equivalents	28,395 Water 29,487 Wastewater 45,776 Transportation	
Storage reservoirs	48 hrs at average annual daily demand	
Adjustment Factors:		
Project costs	As per schedules	PC
ADJUSTMENT FOR GROWTH BENEFIT:		
<ul style="list-style-type: none"> • Oropi WTP • Joyce Rd WTP • Chapel St WWTP • Te Maunga WWTP 	16.7 % 63.9 % 35 % 47 %/100 %	GB
ADJUSTMENT FOR REQUIRED CAPACITY:		
<ul style="list-style-type: none"> • Waiari Supply • Oropi Reservoir • Te Maunga WWTP 	36.4 % 83.6 % 40%	RC
ADJUSTMENT FOR OTHER BENEFIT CAPACITY UPTAKE:		
<u>Omokoroa:</u>		
<ul style="list-style-type: none"> • Chapel St • Te Maunga 	91.2 % 96.6 %	OB

1.2.2 Demand Factors

The following table sets out the demand factors in units of demand for various activities and land uses for Building Impact Fees. Essentially the household unit or household unit equivalent equates to one unit of demand. Other demand factors may be included in future as required.

Development (BIF) Demand Factors per Activity

Activity	Demand Factors
Residential: One household unit or household unit equivalent	1 unit of demand
Business: Business - water	0.24 HUEs / 100m ² of Gross Floor area.
Business - wastewater	0.31 HUEs / 100m ² of Gross Floor area.
Business - transportation	1.25 HUEs / 100m ² of Gross Floor area.
Low demand business - water	0.06 HUEs / 100m ² of Gross Floor area.
Low demand business - wastewater	0.07 HUEs / 100m ² of Gross Floor area.
Low demand business - transportation	1.25 HUEs / 100m ² of Gross Floor area.
Community organisation - water	0.27 HUEs / 100m ² of Gross Floor area.
Community organisation - wastewater	0.27 HUEs / 100m ² of Gross Floor area.
Community organisation - transportation	0.20 HUEs / 100m ² of Gross Floor area.

1.3 Methodology

1.3.1 Calculation of BIF Divisors

The household unit equivalent is a combination of both household growth and business growth expressed in terms of household unit equivalents.

Residential Growth:

The household unit growth that would occur in the planning period is determined from specific growth assessments, census data or projections of future population and household units. The household units or household growth is the unit of demand attributable to residential development.

The growth in the number of household units that is projected to occur in the planning period is:

2001 – Total number of household units	=	39,102
2021 – Total number of household units	=	63,442
Increase in total household units in planning period	=	24,340

Note: Total Household Units = Occupied Households + a 10 percent factor to account for unoccupied dwellings

Non-residential Growth:

The total amount of non-residential growth in the 2001-21 planning period is made up of three components:

- Business activities
- Low demand business activities
- Community organisations

The total amount of additional gross floor area for business activities is based on 38.8m² per additional permanent resident less 5% for floor area that will not attract building impact fees (e.g.

because it is replacing existing floor area). Of this 20% is expected to be classified as a low demand business activity. The total amount of additional floor area for community organisations is based on 1.59m² per additional permanent resident less 5% for floor area that will not attract building impact fees.

The total population of Tauranga was 90,906 in 2001 and is projected to be 142,226 in 2021. The population increase in this period is therefore expected to be 51,320 people and this has been used to calculate the growth projections for business, low demand business and community organisation activities. Additional gross floor area projections are as follows:

Business	= 1,505,758m ²	(38.8 x 0.95 x 0.796 x 51,320)
Low demand business	= 385,898m ²	(38.8 x 0.95 x 0.204 x 51,320)
Community organisation	= 77,519m ²	(1.59 x 0.95 x 51,320)

Based on these assumptions and the scaling factors from the table on the previous page the growth projections for the 2001-21 planning period for non-residential activities are:

Water	= 4,055 HUEs
Wastewater	= 5,147 HUEs
Transportation	= 21,436 HUEs

Total Growth

Adding the residential and non-residential growth projections together for the 2001-21 planning period gives total growth projections of:

Water	= 28,395 HUEs
Wastewater	= 29,487 HUEs
Transportation	= 45,776 HUEs

1.3.2 Annual Review

The Building Impact Fee (development contribution) payable for city-wide network infrastructure shown in Table 2, Part 1 and detailed in Schedule 1, Part 3, shall be reviewed annually as part of the Annual Plan/LTCCP process to take into account changes which affect the provision of the services that are shown in the schedules.

The review will consider the following:

- (i) Changes in the assumptions, data and adjustment factors as set out in Table 1 in this section.
- (ii) Land value changes determined by a registered valuer.
- (iii) Incorporation of the actual cost of completed capital projects.
- (iv) Changes to the estimated cost of capital projects.
- (v) The inclusion or deletion of capital projects.
- (vi) New information on the factors used in calculating the development contribution.
- (vii) The updating of estimated project costs by indexation where during the review cycle an updated estimate in (iv) is not provided.
- (viii) Updating the cost of capital calculations.

1.3.3 Updating Frequency

The assumptions, data and adjustment factors shown in Table 1 in this section will be reviewed during the Annual Plan/LTCCP process according to the frequency indicated in Table 2 below.

Table 2 – Updating Frequency

Input	Annual Update	Exceptions
Peak Day demand – Water		Review as trends change
Design Considerations	✓	
Level of Service	✓	
Planning Period		Review at census interval
Population Growth		Review at census interval
Household Unit Growth		As required
Household Unit Equivalentents		As required
Household Occupancy		Updated at census interval
Project Costs	✓	
Growth Benefit	✓	
Adjustment for required Capacity	✓	
Adjustment for Other Benefit Capacity	✓	
New Projects	✓	
Cost Fluctuation by Indexation	✓	
Cost of Capital	✓	

Schedule 1 – Part 3

City-wide Infrastructure – Water

2.0 City-wide Water

2.1 Funding Needs assessment in relation to the requirements of s101 (3) of the LGA

Scope of Projects covered by this Activity

The projects funded by Tauranga City Council (TCC) through the Water Building Impact Fee are those major projects that provide a potable bulk water supply to the city. It does not relate to projects that replace existing assets or projects that reticulate water within individual growth areas.

Community Outcomes

The Community Outcomes identified for Tauranga city have been summarised in the city's Tauranga Tomorrow document. The provision of a potable bulk water supply across the city contributes to a number of outcomes within Tauranga Tomorrow. These include:

- Clean Green Valued Environment
- Built to Fit our Hills Harbour and Coast
- Vibrant Healthy and Diverse Communities

These projects are also important in implementing Western Bay of Plenty's growth management strategy, SmartGrowth.

Distribution of benefits

The principal benefit that these projects convey is that they increase the total capacity of the city-wide network, creating the potential for new or existing properties to assume capacity in the network. This benefit is conferred on new households and businesses across the city. Given the significant nature of these capital works, Council believes that the impact of not completing these works will increase the risk that individual households and businesses will have insufficient water for their needs. It also increases the risk that the supply of water is insufficient to meet fire-fighting requirements, particularly as the city continues to grow. Each project is assessed and the benefits of completing the project are split among three groups. The first group is existing ratepayers, the second is potential ratepayers within the current planning horizon (currently 2001 to 2021) and the third group relates potential ratepayers after the current planning horizon (after 2021).

Individual projects, particularly those completed at the beginning of the 2001 to 2021 planning period involve a portion of catch-up. This catch-up is funded from rates. Apart from this catch-up portion there is little benefit to existing residents. Council's Level of Service for the supply of water is that all water provided meets the Aa water quality standard and NZ fire-fighting requirements. Given that this level of service is already being met we do not consider that the increase in capacity of the water supply is of significant benefit to the existing population except in relation to any catch-up.

Period in or over which benefits occur

The capital projects included are designed to ensure that all water supplied is potable and sufficient to meet fire-fighting requirements. We have assessed the period over which the benefits are to be divided to be the 2001 to 2021 planning period. The divisor used in our calculations is the expected number of new lots over this period.

Extent to which groups or individuals contribute to the need to undertake the activity

The group that creates the need for these works is residential and non-residential growth (i.e. new households and businesses) across the city. Development contributions allocate the cost of these works to that growth community.

Costs and benefits of funding the activity distinctly from other activities

Given the benefits and causation factors outlined above, it is considered appropriate (in particular for transparency and accountability reasons) for these works to be funded through a city-wide contribution (BIF) rather than from a particular geographic area (SIF) or other funding sources such as rates or a UAGC.

Social, economic, environmental and cultural well-being

Council has considered the impact for all sectors of the community, including the growth community which pays development contributions, of the proposed allocation of costs in terms of their social, economic, environmental and cultural well-being. It considers this allocation of costs to be fair and reasonable. The allocation details for this activity are clearly set out in this section.

2.2 Assumptions and Data Inputs Summary

The calculation of a development contribution for city-wide network infrastructure (Building Impact Fee) entails the identification and calculation of the growth-related infrastructure required during a planning period. Once the capital projects are identified and quantified, the growth-related capital costs that are attributable to each unit of demand are calculated based on a number of inputs and assumptions summarised in Table 1a below.

Table 1a - Assumptions and Data Inputs – Water Supply

Input/Adjustment Factor	Current Data / Factor	Abbreviation in Formula
<u>Assumptions:</u>		
Water Supply – Peak Day Demand	500 litres/head/day	
Planning period	2001 to 2021 in most cases	
Population growth	2007 review of SmartGrowth projections	
Household unit growth	24,340	
Household occupancy	2.3 (by 2021)	
Non-residential household unit equivalents (2001-2021)	4,055 Water	
Total household unit equivalents (2001-2021)	28,395 Water	
Storage reservoirs	48 hrs at average annual daily demand	
<u>Adjustment Factors:</u>		
Project costs	As per schedules	PC
ADJUSTMENT FOR GROWTH BENEFIT:		
• Oropi WTP	16.7 %	GB
• Joyce Rd WTP	63.9 %	
ADJUSTMENT FOR REQUIRED CAPACITY:		
• Waiari Supply	36.4 %	RC
• Oropi Reservoir	83.6 %	

2.3 Explanation of Significant Assumptions

The following section provides more detailed explanation of the assumptions, data inputs and adjustment factors.

2.4 Design Considerations

Raw water abstraction systems, treatment plants, conveyance mains and storage reservoirs are sized according to the peak day demand (PDD) on the supply system (BECA, April 1995).

The peak day translates into different peaks depending on which part of the supply system is being considered. Typically the treatment plants are sized for 1.1 times the peak day, the trunk mains leading from the treatment plants to the service reservoirs are sized to cope with 25 percent above the peak to handle downstream effects, the reservoirs are sized for 48 hrs of normal day use (twice the AADD), and the reticulation supplying out of these reservoirs is then sized for peak hourly flows and fireflows.

The peak day design assumptions are summarised as follows:

Trunk Mains:	sized to carry (1.25 x PDD) for supply area
Reservoirs:	sized to hold (2.0 x AADD)** for supply area
Treatment Plants	sized to produce (1.1 x PDD) for supply area

** AADD (average annual daily demand) is 350 l/c/d. This is applied to total storage for the city and reflects the degree of operational reliability (length of mains/remoteness from production node, control valve risks, single or dual feeds etc). Cambridge Rd is the only system to be marginally reduced (1.5xAADD) due to its current level of reliability.

In 94/95 this was 650 L/h/d with Stage 2 restrictions in place, i.e. hand held hosing on odd and even days. In January 1999 the peak day demand was 59,195 m³ or 691 L/h/d based on a population of 85,655.

The completion of city-wide water meter installation and water charges based on metered consumption has resulted in a substantial reduction in the peak day demand. An unrestricted peak day demand of 500 l/h/d was recorded in 2003 after the completion of metering.

In late 2006 Opus International Consultants Limited completed an Analysis of Peak Daily Water Demand for Tauranga City Council. This analysis concluded that the use of 500 l/h/d is appropriate for weather conditions that have been experienced in the period since the introduction of universal metering. The analysis also noted that since the introduction of universal metering there has not been a really extreme summer, such as that of 1997/1998. Tauranga City Council may develop a demand management plan should more extreme dry/hot conditions occur.

For the purposes of the BIF calculations the peak day demand of 500 l/h/d is used as the basis for calculating the 2021 water demand. The peak day demand will be reviewed as consumption trends change.

2.5 Treatment Plant Capacities

Initial 1991, present and proposed capacities of the water treatment plants are as follows:

Year	Plant	Capacity	Comments
1991	Joyce Road	13,000m ³	(Beca report April 1989)
	Oropi Road	27,500m ³	
	Total	40,500m³	
1995	Joyce Road	13,000m ³	(Beca report April 1995)
	Oropi Road	27,500m ³	
	Total	40,500m³	
2001/2002	Joyce Road	36,000m ³	
	Oropi Road	30,000m ³	
	Total	66,000m³	
2003 (current capacity)	Joyce Road	36,000m ³	
	Oropi Road	33,000m ³	

Year	Plant	Capacity	Comments
	Total	69,000m³	
Proposed Stage 1 (2009)	Joyce Road	36,000m ³	Capacity 30,000m ³ but 10,000m ³ allocated to WBOPDC
	Oropi Road	33,000m ³	
	Waiari supply	20,000m ³ *	
	Total	89,000m³	

The Joyce Rd capacity is stated as 37,000m³ in the Beca reports. The treatment plant produces 36,000m³ of potable water as treatment losses account for 1,000m³. Oropi Rd is a zero discharge plant.

2.7 Planning Periods

The Joyce Rd and Oropi Rd upgrades were required to cater for the population growth between 1996 and 2016. The planning period used in the Development Contributions Policy for these plants is 2001-2016. As such, the cost of these projects needs to split between the 1996-2001 and the 2001-2016 periods.

The following table shows Tauranga City's population at 1996, 2001 and 2016 and the population growth over the 2001-2016 period as a percentage of total population growth over the 1996-2016 period.

	1996	2001	2016	Growth 1991 - 2016	Growth 2001 - 2016	Growth 01-16 as % of total growth
Population	77,775	90,825	129,336	51,561	38,511	74.7%

As the population growth over the 2001-2016 period is 74.7% percent of the total population growth over the 1996-2016 period, 74.7% of the cost of these treatment plant upgrades will be allocated to the 2001-2016 planning period.

The Waiari treatment plant will provide capacity for growth from 2016 to 2051 and will therefore be funded over the growth that occurs in this period.

2.7 Capacity required for Growth

Given a peak day demand of 500 l/h/d the bulk water requirements for the areas of the district that will be serviced are:

2021 Population (predicted medium migration growth) = 142,226

$$142,226 \times 500 \text{ L/h/d} = 71,113 \text{ m}^3/\text{day}.$$

Peak day design capacity required in planning period:

$$1.1 \times 71,113 = 78,224 \text{ m}^3/\text{day}.$$

Proportion of plant capacities required to service development up to 2021:

Capacity in 2001	=	66,000 m ³ /day
Oropi upgrade in 2003	=	3,000 m ³ /day

Total capacity	=	69,000 m ³ /day
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Growth requires all of the 2003 Oropi Road plant upgrade plus:

$(78,224 - 69,000) / 20,000 = 9,224/20,000 = 46.1$ percent of the Waiari supply.

2.8 Level of Service for Reservoirs

Service reservoirs are sized to provide storage for 48 hours (two days) at average annual day demand. This is currently 700 l/h/d.

2.9 Project costs for Water Supply Development Contribution – City Wide Infrastructure – 2009/10

PROJECT	LIPS No.	CAPITAL COST			ADJUSTMENT FACTORS		CAPITAL COST ALLOCATION		CONTRIBUTION PER UNIT OF DEMAND	
		PC - TOTAL CAPITAL COST	LESS AMOUNT SIF FUNDED	BALANCE TO BE FUNDED	GB - GROWTH BENEFIT	RC - REQUIRED CAPACITY	GC - GROWTH FUNDED PORTION (A)	OTHER FUNDED PORTION	HOUSE-HOLD UNIT EQUIVALENTS(B)	COST PER UNIT (A/B)
WAIARI STREAM SUPPLY										
Treatment										
Land purchase	280171	\$2,078,480	\$0	\$2,078,480	1.000	0.000	\$0	\$2,078,480	10,336	\$0.00
Waiari intake stage 1	876	\$545,049	\$0	\$545,049	1.000	0.000	\$0	\$545,049	10,336	\$0.00
Waiari Intake & Water Treatment Plant	1597	\$44,828,480	\$0	\$44,828,480	1.000	0.000	\$0	\$44,828,480	10,336	\$0.00
Subregional water resource agreement	870	\$1,000,000	\$0	\$1,000,000	1.000	0.000	\$0	\$1,000,000	10,336	\$0.00
Subtotal		\$48,452,009	\$0	\$48,452,142			\$0	\$48,452,009	10,336	\$0.00
Mains										
SH2 main (From Poplar Ln to Domain Rd)	1942	\$6,038,000	\$0	\$6,038,000	1.000	0.000	\$0	\$6,038,000	10,336	\$0.00
SH2 main (Kairua Rd to Domain Rd)	242	\$2,742,169	\$0	\$2,742,169	1.000	0.000	\$0	\$2,742,169	10,336	\$0.00
Kairua Rd main (Res to SH2)	247	\$2,050,000	\$0	\$2,050,000	0.550	0.000	\$0	\$2,050,000	10,336	\$0.00
Poplar Ln main (Res to SH2)	253	\$1,377,152	\$0	\$1,377,152	1.000	0.000	\$0	\$1,377,152	10,336	\$0.00
Tara Rd main (Domain Rd to Parton Rd)	272	\$2,724,500	\$0	\$2,724,500	1.000	0.000	\$0	\$2,724,500	10,336	\$0.00
Trunk main (Waiari to Poplar Lane)	1614	\$17,816,000	\$0	\$17,816,000	1.000	0.000	\$0	\$17,816,000	10,336	\$0.00
SH2 main (From Domain Rd to Kairua Rd)	1831	\$2,979,000	\$0	\$2,979,000	1.000	0.000	\$0	\$2,979,000	10,336	\$0.00
Main Site 14 Kairua Rd (Stage2)	2221	\$2,000,000	\$0	\$2,000,000	1.000	0.000	\$0	\$2,000,000	10,336	\$0.00
Subtotal		\$37,726,821		\$37,726,821			\$0.00	\$37,726,182		

Schedule 1 – Part 3 – City-wide Infrastructure Water

PROJECT	LIPS No.	CAPITAL COST			ADJUSTMENT FACTORS		CAPITAL COST ALLOCATION		CONTRIBUTION PER UNIT OF DEMAND	
		PC - TOTAL CAPITAL COST	LESS AMOUNT SIF FUNDED	BALANCE TO BE FUNDED	GB - GROWTH BENEFIT	RC - REQUIRED CAPACITY	GC - GROWTH FUNDED PORTION (A)	OTHER FUNDED PORTION	HOUSE-HOLD UNIT EQUIVALENT S(B)	COST PER UNIT (A/B)
Reservoirs										
Waiari Reservoirs	1604	\$5,999,240	\$0	\$5,999,240	1.000	0.000	\$0	\$5,999,240	10,336	\$0.00
City mains										
Link Mangatawa to Gloucester - P10	280173	\$27,404	\$0	\$27,404	1.000	1.000	\$27,404	\$0	28,395	\$0.97
Link Sandhurst/SH2 to coast - P11	256	\$487,300	\$0	\$487,300	1.000	1.000	\$487,300	\$0	28,395	\$17.16
Parton Rd main (Tara Rd to coast)	273	\$715,000	\$0	\$715,000	1.000	1.000	\$715,000	\$0	28,395	\$25.18
The Mall to Coronation Park - P14	280174	\$896,000	\$0	\$896,000	1.000	1.000	\$896,000	\$0	28,395	\$31.55
Coronation Park to Nikau Cres - P15	280305	\$75,239	\$0	\$75,239	1.000	1.000	\$75,239	\$0	28,395	\$2.65
Mount reservoir to Adams Ave - P16	280306	\$586,354	\$0	\$586,354	1.000	1.000	\$586,354	\$0	28,395	\$20.65
Nikau Cres to Hull Road main	238	\$623,280	\$0	\$623,280	1.000	1.000	\$623,280	\$0	28,395	\$21.95
Parton Rd main (Bell Rd to Tara Rd)	255	\$2,497,602	\$0	\$2,497,602	1.000	1.000	\$2,497,602	\$0	28,395	\$87.96
Domain Rd main (SH2 Jn to coast)	276	\$1,060,000	\$0	\$1,060,000	1.000	1.000	\$1,060,000	\$0	28,395	\$37.33
Main Site 14 to Kairua Rd (Stage1)	2223	\$1,850,000	\$0	\$1,850,000	1.000	1.000	\$1,850,000	\$0	28,395	\$65.15
Subtotal		\$8,818,179	\$0	\$8,818,179			\$8,818,479	\$0		
Reservoirs										
Kairua Rd land cost	280175	\$500,000	\$0	\$500,000	1.000	1.000	\$500,000	\$0	28,395	\$17.61
Eastern reservoir No. 1	170	\$7,031,822	\$0	\$7,031,822	1.000	1.000	\$7,031,822	\$0	28,395	\$247.64
Eastern reservoir No. 2	168	\$3,930,000	\$0	\$3,930,000	1.000	0.420	\$1,650,600	\$2,279,400	28,395	\$58.13

Schedule 1 – Part 3 – City-wide Infrastructure Water

PROJECT	LIPS No.	CAPITAL COST			ADJUSTMENT FACTORS		CAPITAL COST ALLOCATION		CONTRIBUTION PER UNIT OF DEMAND	
		PC - TOTAL CAPITAL COST	LESS AMOUNT SIF FUNDED	BALANCE TO BE FUNDED	GB - GROWTH BENEFIT	RC - REQUIRED CAPACITY	GC - GROWTH FUNDED PORTION (A)	OTHER FUNDED PORTION	HOUSE-HOLD UNIT EQUIVALENT S(B)	COST PER UNIT (A/B)
Land sale Kairua Rd	2225	(\$1,000,000)	\$0	(\$1,000,000)	1.000	0.200	(\$220,000)	(\$880,000)	28,395	(\$7.75)
Subtotal		\$10,361,822	\$0	\$10,361,822			\$8,962,422	\$1,399,400		
OROPI RD SUPPLY										
Treatment										
Treatment plant	280176	\$13,155,375	\$0	\$13,155,375	0.167	1.000	\$2,196,948	\$10,958,427	18,058	\$121.66
Mains										
Cambridge Rd p/s upgrade	280177	\$244,304	\$0	\$244,304	1.000	1.000	\$244,304	\$0	18,058	\$13.53
Cambridge Rd p/s upgrade	280177	\$16,599	\$0	\$16,599	1.000	1.000	\$16,599	\$0	18,058	\$0.92
Cambridge Rd standby generator	280178	\$335,102	\$0	\$335,102	0.167	1.000	\$55,962	\$279,140	18,058	\$3.10
Cambridge Res to St Andrews Dr	280179	\$22,844	\$0	\$22,844	1.000	1.000	\$22,844	\$0	18,058	\$1.27
Barkes Cnr to Cambridge Rd dupl.	280180	\$871,152	\$0	\$871,152	1.000	1.000	\$871,152	\$0	18,058	\$48.24
Oropi Rd trunk main	280181	\$1,878,622	\$0	\$1,878,622	1.000	1.000	\$1,878,622	\$0	18,058	\$104.03
Oropi Trunk Stage 1	280182	\$388,536	\$0	\$388,536	1.000	1.000	\$388,536	\$0	18,058	\$21.52
Oropi Trunk Stage 2 -Pyes Pa Rd	280183	\$864,154	\$0	\$864,154	1.000	1.000	\$864,154	\$0	18,058	\$47.85
Oropi Booster pump station	280184	\$40,100	\$0	\$40,100	1.000	1.000	\$40,100	\$0	18,058	\$2.22
Oropi TP to P/S main stage 1	280185	\$825,000	\$0	\$825,000	1.000	1.000	\$825,000	\$0	18,058	\$45.69
Chadwick Rd and Lincoln Tce main	1849	\$941,000	\$0	\$941,000	1.000	0.660	\$621,060	\$319,940	28,395	\$21.87
Cambridge Rd main (Westridge to Miles)	1846	\$360,000	\$0	\$360,000	1.000	0.660	\$237,600	\$122,400	28,395	\$8.37
Osprey Dr main	1844	\$294,000	\$0	\$294,000	1.000	0.660	\$194,040	\$99,960	28,395	\$6.83
Pooles Rd main (Mansels Rd – Rawhiti St)	1842	\$73,000	\$0	\$73,000	1.000	0.660	\$48,180	\$24,820	28,395	\$1.70
Wood Rd. pump station	330	\$548,000	\$0	\$548,000	1.000	0.420	\$230,160	\$317,840	28,395	\$8.11
Oropi Rd main (WTPlant to Wood Rd)	303	\$2,383,000	\$0	\$2,383,000	1.000	1.000	\$2,383,000	\$0	28,395	\$83.92

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PROJECT	LIPS No.	CAPITAL COST			ADJUSTMENT FACTORS		CAPITAL COST ALLOCATION		CONTRIBUTION PER UNIT OF DEMAND	
		PC - TOTAL CAPITAL COST	LESS AMOUNT SIF FUNDED	BALANCE TO BE FUNDED	GB - GROWTH BENEFIT	RC - REQUIRED CAPACITY	GC - GROWTH FUNDED PORTION (A)	OTHER FUNDED PORTION	HOUSE-HOLD UNIT EQUIVALENT S(B)	COST PER UNIT (A/B)
Wood Rd.main (Oropi Rd to Joyce Rd)	620	\$1,282,000	\$0	\$1,282,000	1.000	1.000	\$1,282,000	\$0	28,395	\$45.15
Joyce Rd main (Pyes Pa Rd to Res)	615	\$2,488,486	\$0	\$2,488,486	1.000	1.000	\$2,488,486	\$0	28,395	\$87.64
Welcome Bay high level main	610	\$1,786,400	\$0	\$1,786,400	1.000	1.000	\$1,786,400	\$0	28,395	\$62.91
Chadwick Rd. - Church Rd.	304	\$1,219,400	\$0	\$1,219,400	1.000	0.420	\$512,148	\$707,252	28,395	\$18.04
Subtotal		\$16,861,699	\$0	\$16,861,699			\$14,990,347	\$1,871,352		
Reservoirs										
Cambridge Rd reservoir No.4	148	\$2,996,902	\$0.00	\$2,996,902	1.000	0.420	\$1,258,699	\$1,738,203	28,395	\$44.33
Cambridge Rd reservoir No.3	280186	\$753,559	\$259,978	\$493,581	1.000	1.000	\$493,581	\$0	28,395	\$17.38
Cambridge Rd reservoir preload	280187	\$112,638	\$38,860	\$73,778	1.000	1.000	\$73,778	\$0	28,395	\$2.60
Cambridge Rd reservoir overflow	280188	\$35,846	\$0	\$35,846	1.000	1.000	\$35,846	\$0	28,395	\$1.26
Cambridge Rd reservoir land purchase	280189	\$249,196	\$0	\$249,196	1.000	1.000	\$249,196	\$0	28,395	\$8.78
Oropi Rd treatment plant reservoir No.2	280190	\$2,790,154	\$0	\$2,790,154	1.000	0.420	\$1,171,865	\$1,618,289	28,395	\$41.27
Oropi Rd reservoir No.3 land purchase	153	\$600,000	\$0	\$600,000	1.000	1.000	\$600,000	\$0	28,395	\$21.13
Pyes Pa West RL60 reservoir No.1	171	\$4,900,000	\$0	\$4,900,000	1.000	1.000	\$4,900,000	\$0	28,395	\$172.57
Pyes Pa West RL60 reservoir No.2	178	\$3,565,069	\$0	\$3,565,069	1.000	0.420	\$1,497,329	\$2,067,740	28,395	\$52.73
Reservoir land - Pyes Pa	307	\$500,000	\$0	\$500,000	1.000	1.000	\$500,000	\$0	28,395	\$17.61
Oropi reservoir No.3	166	\$3,565,069	\$0	\$3,565,069	1.000	0.420	\$1,497,329	\$2,067,740	28,395	\$52.73
Subtotal		\$20,068,433	\$298,838	\$19,769,595			\$12,277,622	\$7,491,973		
JOYCE RD SUPPLY										
Treatment										
Treatment plant	280191	\$14,129,686	\$0	\$14,129,686	0.639	1.000	\$9,028,869	\$5,100,817	18058	\$499.99

Schedule 1 – Part 3 – City-wide Infrastructure Water

PROJECT	LIPS No.	CAPITAL COST			ADJUSTMENT FACTORS		CAPITAL COST ALLOCATION		CONTRIBUTION PER UNIT OF DEMAND	
		PC - TOTAL CAPITAL COST	LESS AMOUNT SIF FUNDED	BALANCE TO BE FUNDED	GB - GROWTH BENEFIT	RC - REQUIRED CAPACITY	GC - GROWTH FUNDED PORTION (A)	OTHER FUNDED PORTION	HOUSE-HOLD UNIT EQUIVALENT S(B)	COST PER UNIT (A/B)
Mains										
Thornlea Dr main	1851	\$7,000	\$0	\$7,000	1.000	0.660	\$4,620	\$2,380	28,395	\$0.16
Waitaha Rd main	1850	\$371,000	\$0	\$371,000	1.000	0.660	\$244,860	\$126,140	28,395	\$8.62
Truman Lane main	1848	\$15,000	\$0	\$15,000	1.000	0.660	\$9,900	\$5,100	28,395	\$0.35
Waikite Rd, Welbay Rd, Waitaha Rd & Village Park Dr mains upgrade	1847	\$1,500,000	\$0	\$1,500,000	1.000	0.660	\$990,000	\$510,000	28,395	\$34.87
Haukore St (Harini St to 26 Haukore St)	1845	\$58,000	\$0	\$58,000	1.000	0.660	\$38,280	\$19,720	28,395	\$1.35
Ohauti Rd main (Taylor to Summerhaven)	1843	\$128,000	\$0	\$128,000	1.000	0.660	\$84,480	\$43,520	28,395	\$2.98
Domain Rd to Bell Rd 300mm	280192	\$630,461	\$0	\$630,461	1.000	1.000	\$630,461	\$0	18,058	\$34.91
Joyce Rd trunk pipe supply & installation	280193	\$608,005	\$0	\$608,005	1.000	1.000	\$608,005	\$0	18,058	\$33.67
Joyce Rd trunk main syphon	280194	\$84,237	\$0	\$84,237	1.000	1.000	\$84,237	\$0	18,058	\$4.66
Kairua Rd to Domain Rd	280195	\$265,482	\$0	\$265,482	1.000	1.000	\$265,482	\$0	18,058	\$14.70
Mangatawa to Kairua Stage 1	280196	\$201,824	\$0	\$201,824	1.000	1.000	\$201,824	\$0	18,058	\$11.18
Mangatawa to Kairua Stage 2	280197	\$178,546	\$0	\$178,546	1.000	1.000	\$178,546	\$0	18,058	\$9.89
Mangatawa to Kairua Stage 3	280198	\$157,317	\$0	\$157,317	1.000	1.000	\$157,317	\$0	18,058	\$8.71
Matapihi old PRV removal	280199	\$35,192	\$0	\$35,192	1.000	1.000	\$35,192	\$0	18,058	\$1.95
Matapihi PRV upgrade to 12"	280200	\$51,407	\$0	\$51,407	1.000	1.000	\$51,407	\$0	18,058	\$2.85
Maungatapu Bridge 450mm	280201	\$111,565	\$0	\$111,565	1.000	1.000	\$111,565	\$0	18,058	\$6.18
Ohauti Rd cross over	280202	\$75,923	\$0	\$75,923	1.000	1.000	\$75,923	\$0	18,058	\$4.20
Oropi Rd high pressure valve pit	280203	\$250,000	\$0	\$250,000	1.000	1.000	\$250,000	\$0	18,058	\$13.84
SH 29 to Ohauti installation	280204	\$497,590	\$0	\$497,590	1.000	1.000	\$497,590	\$0	18,058	\$27.56
Tara Rd trunk	280205	\$162,466	\$0	\$162,466	1.000	1.000	\$162,466	\$0	18,058	\$9.00
Waiorohi Valley 450mm	280206	\$486,377	\$0	\$486,377	1.000	1.000	\$486,377	\$0	18,058	\$26.93

Schedule 1 – Part 3 – City-wide Infrastructure Water

PROJECT	LIPS No.	CAPITAL COST			ADJUSTMENT FACTORS		CAPITAL COST ALLOCATION		CONTRIBUTION PER UNIT OF DEMAND		
		PC - TOTAL CAPITAL COST	LESS AMOUNT SIF FUNDED	BALANCE TO BE FUNDED	GB - GROWTH BENEFIT	RC - REQUIRED CAPACITY	GC - GROWTH FUNDED PORTION (A)	OTHER FUNDED PORTION	HOUSE-HOLD UNIT EQUIVALENT S(B)	COST PER UNIT (A/B)	
Welcome Bay - Kairua Stage 1	280207	\$427,933	\$0	\$427,933	1.000	1.000	\$427,933	\$0	18,058	\$23.70	
Welcome Bay - Kairua Stage 2	280208	\$373,590	\$0	\$373,590	1.000	1.000	\$373,590	\$0	18,058	\$20.69	
Welcome Bay - Kairua Stage 3	280209	\$413,404	\$0	\$413,404	1.000	1.000	\$413,404	\$0	18,058	\$22.89	
Subtotal		\$7,090,319	\$0	\$7,090,319			\$6,383,459	\$706,860			
Reservoirs											
Joyce Rd reservoir	280210	\$1,863,258	\$223,591	\$1,639,667	1.000	1.000	\$1,639,667	\$0	28,395	\$57.74	
Kaitemako Rd reservoir inlet main	280211	\$92,796	\$0	\$92,796	1.000	1.000	\$92,796	\$0	28,395	\$3.27	
Poplar Lane reservoir purchase	280212	\$925,054	\$0	\$925,054	1.000	1.000	\$925,054	\$0	28,395	\$32.58	
Waikite Rd reservoir No.2	280213	\$481,625	\$0	\$481,625	1.000	1.000	\$481,625	\$0	28,395	\$16.96	
Waikite Rd reservoir preload	280214	\$102,094	\$0	\$102,094	1.000	1.000	\$102,094	\$0	28,395	\$3.60	
Waikite reservoir inlet main	280215	\$180,522	\$0	\$180,522	1.000	1.000	\$180,522	\$0	28,395	\$6.36	
Joyce Rd reservoir No.2	162	\$4,600,000	\$0	\$4,600,000	0.500	1.000	\$2,300,000	\$2,300,000	28,395	\$81.00	
Subtotal		\$8,245,349	\$223,591	\$8,021,758			\$5,721,758	\$2,300,000			
Totals		\$190,908,932	\$483,569	\$190,386,503			\$68,379,604	\$122,006,899	TOTAL	\$2,840.47	
				Revenue Received 1991 to 2001			-\$2,509,118				-\$138.95
								Cost of Inflation		\$139.94	
								Cost of Capital		\$139.58	
								SUBTOTAL		\$2,981.04	
							Impact of Low Demand Dwellings		6.81%	\$203.01	
Note: 1. Estimated Costs in Italics							\$65,870,486	TOTAL BIF		\$3,184.05	
2. * Waiari WBOPDC allocation											

Schedule 1 – Part 3

City-wide Infrastructure – Wastewater

3.0 City-wide Wastewater

3.1 Funding Needs assessment in relation to the requirements of S101 (3) of the LGA

Scope of Projects covered by this Activity

The projects funded by Tauranga City Council (TCC) through the Wastewater Building Impact Fee are those major projects that upgrade; the treatment of the wastewater or the discharge of that treated wastewater through to the ocean. It does not relate to projects that replace existing assets or projects that collect wastewater from within individual growth areas and convey it to the treatment plants.

Community Outcomes

The Community Outcomes identified for Tauranga city have been summarised in the city's Tauranga Tomorrow document. The bulk collection, treatment and discharge of wastewater across the city contribute to a number of outcomes within Tauranga Tomorrow. These include:

- Clean Green Valued Environment
- Built to Fit our Hills Harbour and Coast
- Vibrant Healthy and Diverse Communities

These projects are also important in implementing Western Bay of Plenty's growth management strategy, SmartGrowth.

Distribution of Benefits

The principal benefit that these projects convey is that they increase the total capacity of the city-wide network, creating the potential for new or existing properties to assume capacity in the network. This benefit is conferred on new households and businesses across the city.

Given the significant nature of these capital works, Council believes that the impact of not completing these works will increase the risk that a significant contamination event will occur, particularly as the city continues to grow. Each project is assessed and the benefits of completing the project are split among three groups. The first group is existing ratepayers, the second is potential ratepayers within the current planning horizon (currently 2001 to 2021) and the third group relates to potential ratepayers after the current planning horizon (after 2021).

Individual projects, particularly those completed at the beginning of the 2001 to 2021 planning period involve a portion of catch-up. This catch-up is funded from rates. Apart from this catch-up portion there is little benefit to existing residents. Council's Level of Service for the treatment of wastewater is that all wastewater discharged into the ocean meets the ongoing resource consent conditions. Given that this level of service is already being met we do not consider that the increase in capacity of wastewater treatment is of significant benefit to the existing population except in relation to any catch-up.

Period in or over which benefits occur

The capital projects included are designed to ensure that all wastewater is able to be properly treated before it is discharged into the ocean. We have assessed the period over which the benefits are to be divided to be the 2001 to 2021 planning period. The divisor used in our calculations is the expected number of new lots over this period.

Extent to which groups or individuals contribute to the need to undertake the activity

The group that creates the need for these works is residential and non-residential growth (i.e. new households and businesses) across the city. Development contributions allocate the cost of these works to that growth community.

Costs and benefits of funding the activity distinctly from other activities

Given the benefits and causation factors outlined above, it is considered appropriate (in particular for transparency and accountability reasons) for these works to be funded through a city-wide contribution (BIF) rather than from a particular geographic area (SIF) or other funding sources such as rates or a UAGC.

Social, economic, environmental and cultural well-being

The Council has considered the impact on all sectors of the community, including the growth community which pays development contributions, of the proposed allocation of costs in terms of their social, economic, environmental and cultural well-being. It considers this allocation of costs to be fair and reasonable. The allocation details for this activity are clearly set out in this section.

3.2 Wastewater Assumptions and Data Inputs Summary

The calculation of a development contribution for city-wide network infrastructure (Building Impact Fee) entails the identification and calculation of the growth-related infrastructure required during a planning period. Once the capital projects are identified and quantified, the growth-related capital costs that are attributable to each unit of demand are calculated based on a number of inputs and assumptions summarised in Table 1b below.

Table 1b - Assumptions and Data Inputs - Wastewater

Input/Adjustment Factor	Current Data / Factor	Abbreviation in Formula
<u>Assumptions:</u>		
Wastewater loading	270 litres/head/day	
Planning period	2001 to 2021	
Population growth	2007 review of SmartGrowth projections	
Household unit growth	24,340	
Household occupancy	2.3 (by 2021)	
Non-residential household unit equivalents (2001-2021)	5,147 Wastewater	
Total household unit equivalents (2001-2021)	29,487 Wastewater	
<u>Adjustment Factors:</u>		
Project costs	As per schedules	PC
ADJUSTMENT FOR GROWTH BENEFIT:		
• Chapel St WWTP	35 %	GB
• Te Maunga WWTP	47 %/100 %	
ADJUSTMENT FOR REQUIRED CAPACITY:		
• Te Maunga WWTP	40%	RC
ADJUSTMENT FOR OTHER BENEFIT CAPACITY UPTAKE:		
<u>Omokoroa:</u>		
• Chapel St	91.2 %	OB
• Te Maunga	96.6 %	

3.3 Design Considerations

Treatment plant hydraulic capacity is expressed in terms of average dry weather flow. The rate of domestic wastewater production is expressed in terms of litres per head per day (l/h/d). The loading generated by commercial activities is typically higher than that from residential households. The BECA 1998 report uses a wastewater flow of 275 l/h/d for estimating the future loads to the treatment plants.

For the purposes of the BIF calculations, a flow of 270 l/h/d has been used.

From the 2001 PWC benchmarking an actual average flow of 278 l/h/d was recorded. In 2002 the actual average recorded was 264 l/h/d. This represents the total wastewater flow divided by the connected population. The 210 l/h/d flow stated in the Code of Practice for Development is used to determine reticulation and pump station sizes and should not be confused with the 270 l/h/d used for treatment plant design.

Capacity Required

These considerations are used for determining the capacity of the infrastructure required to serve the expected future demands.

Wastewater: 270 l/h/d

This represents the total wastewater loading, i.e. it includes all residential, industrial and commercial loading.

Treatment plants are sized to meet the expected population with hydraulic capacity being expressed in terms of average dry weather flow. The rate of wastewater production is expressed in litres per head per day (l/h/d) and is used to estimate future loads to the treatment plants as follows:

Wastewater capacity in m³ per day = l/h/d x projected population at end of planning period.

3.4 Treatment Plant Capacities

Chapel Street Plant

Capacity in Base Year	2001	16,300 m ³ / day
Current Capacity	2003	20,000 m ³ / day ADWF
Actual Flow	2003	14,370 m ³ / day (benchmarking 2003)
Upgrade to	2008	25,000 m ³ / day ADWF

Full capacity should be achieved in 2021.

Te Maunga Plant

Capacity in Base Year	2001	11,000 m ³ / day(1997)
Current Capacity	2003	11,000 m ³ / day ADWF
Actual Flow	2003	7,583m ³ / day (benchmarking 2002)
Capacity Upgrade - Reactor No. 2	2015	40,000 m ³ / day
Estimated Year of Full Capacity Reactor No. 2	2051	

The Stage 2 plant is designed to be fully loaded in 2021.

When Stage 1 was commissioned, it was found that although the plant had spare hydraulic capacity, the high BOD loading meant the plant was essentially at design treatment capacity and aeration improvements were required.

A revised development plan (MWH 2003 report) for the Te Maunga plant has been devised to provide for population growth up to 2051. Two significant changes to the earlier development plan have been identified:

- (i) The performance of the existing oxidation ditch (reactor) can be enhanced by adding high efficiency diffusers. Thus over the 50 year period two oxidation ditches will be sufficient compared with the three identified in the earlier development plan.
- (ii) More clarifiers than previously proposed are required because of the treatment characteristics of the type of plant and the wastewater received from the catchment.

3.5 Project Cost Apportionment

The benefit that the population existing prior to the 2001 planning period receives from the Chapel Street and Te Maunga plant upgrades should be shared between that population and the subsequent growth.

Project cost apportionment is based on the capacity ratios as set out in the table below:

Capacity Ratio Table (Growth Benefit)

As explained in Part 2 section 1.4.8, due to the overlap in planning periods, it is necessary to recover the costs for projects that provide capacity for growth up to 2011. The table below sets out the basis for determining the percentage of capacity required to serve growth, with the balance being the benefit received by the existing population prior to 1991.

Planning Period 1991 to 2011

Plant	Capacity – 1991 m ³ / day	Capacity – 2011 m ³ / day	Capacity Increase	Increase as % of Total Capacity
Chapel Street	16,300	25,000	8,700	35%
Te Maunga Stage 1	5,800*	11,000	5,200	47%

* The capacity of the oxidation ponds prior to the Stage 1 upgrade was considerably less than the 11,000 m³ / day ADWF plant commissioned in 1996. Inflows of 5,800 m³ / day were recorded in 1992. This flow has been used as the capacity of the ponds as higher flows resulted in a reduction in effluent quality.

Some projects in the 1991 to 2011 planning period are only growth related and therefore are a 100 percent funded from development contributions.

For the planning period 2001 to 2021, Te Maunga Stage 2 to 4 upgrades are 100 percent growth funded. The required capacity has been calculated as follows:

Planning Period 2001 to 2021

Description	Year at full capacity	Base year	Cost to be recovered by 2021 – 20 year planning period
Stage 2 – Aeration to ditch No. 1, Clarifier No. 2	2021	2001	100 %
Stage 3 - Sludge dewatering	2021	2001	100 %
Stage 4 – Clarifier No. 3	2021	2001	100 %
Stage 5 – Oxidation ditch No. 2	2051	2001	20/50 = 40 %
Outfall upgrades	2051	2001	20/50 = 40 %
Wetlands	2041	2001	20/40 = 50%

Omokoroa Loading – OB (Other Benefit)

The component of project costs attributable to growth in our district should be reduced by the capacity set aside for other users.

Council has entered into an agreement with Western Bay of Plenty District Council to accept and treat wastewater from the proposed Omokoroa wastewater scheme that is planned for commissioning by 2007. The BIFs should be reduced by the capacity allocated to the Omokoroa wastewater scheme.

The estimated loading to be received from the Omokoroa wastewater scheme is 2,200 m³/day or 8.8 percent of the planned Chapel Street capacity (25,000 m³/day ADWF).

The percentage capacity uptake in the planning period to 2021 should therefore be adjusted as calculated in the table below:

Treatment Plant	Capacities	% capacity required	Adjustment factor - OB
Omokoroa Maximum Flow	2,200m ³ / day		
Chapel St Capacity	25,000m ³ / day		
% of Chapel St Capacity	2,200/25,000	= 8.8%	91.2%
Chapel St	25,000m ³ / day		
Te Maunga	40,000m ³ / day		
Total	65,000m ³ / day		
% of discharge improvements capacity	2,200/65,000	= 3.4%	96.6%

3.6 Project Costs Wastewater Development Contribution: City Wide Infrastructure - 2009/2010

PROJECT	LIPS No.	CAPITAL COST			ADJUSTMENT FACTORS			CAPITAL COST ALLOCATION		CONTRIBUTION PER UNIT OF DEMAND	
		PC - TOTAL CAPITAL COST	LESS AMOUNT SIF FUNDED	BALANCE TO BE FUNDED	GB - GROWTH BENEFIT	RC - REQUIRED CAPACITY	OB - OTHER BENEFIT	GC - GROWTH FUNDED PORTION (A)	OTHER FUNDED PORTION	HOUSEHOLD UNIT EQUIVALENTS (B)	COST PER UNIT (A/B)
CHAPEL STREET TREATMENT PLANT											
Stage III Upgrading											
Pre-treatment works	280143	\$1,127,000	\$0	\$1,127,000	0.350	1.000	0.912	\$359,738	\$767,262	29,487	\$12.20
Sludge handling	280144	\$1,274,000	\$0	\$1,274,000	0.350	1.000	0.912	\$406,661	\$867,339	29,487	\$13.79
Admin building	280145	\$365,000	\$0	\$365,000	0.350	1.000	0.912	\$116,508	\$248,492	29,487	\$3.95
UV disinfection	280146	\$1,199,000	\$0	\$1,199,000	0.350	1.000	0.912	\$382,721	\$816,279	29,487	\$12.98
Flow balancing	280147	\$1,949,858	\$0	\$1,949,858	1.000	1.000	0.912	\$1,778,270	\$171,588	29,487	\$60.31
Odour treatment	280148	\$30,000	\$0	\$30,000	0.000	1.000	0.912	\$0	\$30,000	29,487	\$0.00
Professional services	280149	\$819,578	\$0	\$819,578	0.350	1.000	0.912	\$261,609	\$557,969	29,487	\$8.87
General works	280150	\$14,000	\$0	\$14,000	0.350	1.000	0.912	\$4,469	\$9,531	29,487	\$0.15
SCADA upgrade	280151	\$31,301	\$0	\$31,301	0.000	1.000	0.912	\$0	\$31,301	29,487	\$0.00
Screens	2160	\$1,263,000	\$0	\$1,263,000	0.160	1.000	1.000	\$202,080	\$1,060,920	29,487	\$6.85
CST Ground Watering	2161	\$473,000	\$0	\$473,000	0.160	1.000	1.000	\$75,680	\$397,320	29,487	\$2.57
UV Upgrade	2162	\$1,285,000	\$0	\$1,285,000	0.160	1.000	1.000	\$205,600	\$1,079,400	29,487	\$6.97
Bypass Facilities	2163	\$1,813,000	\$0	\$1,813,000	0.160	1.000	1.000	\$290,080	\$1,522,920	29,487	\$9.84
Final Effluent Pumps	2164	\$379,000	\$0	\$379,000	0.160	1.000	1.000	\$60,640	\$318,360	29,487	\$2.06
Electrical	2165	\$4,953,000	\$0	\$4,953,000	0.160	1.000	1.000	\$792,480	\$4,160,520	29,487	\$26.88
subtotal		\$16,975,737	\$0	\$16,975,737				\$4,936,537	\$12,039,200		
Digester Upgrade											
Digestors No.1 and 2 upgrade	280152	\$1,847,333	\$0	\$1,847,333	0.350	1.000	0.912	\$589,669	\$1,257,664	29,487	\$20.00
Standby generator upgrade	280153	\$372,262	\$0	\$372,262	0.350	1.000	0.912	\$118,826	\$253,436	29,487	\$4.03
SCADA system upgrade	280154	\$137,857	\$0	\$137,857	0.350	1.000	0.912	\$44,004	\$93,853	29,487	\$1.49
subtotal		\$2,357,452	\$0	\$2,357,452				\$752,499	\$1,604,953		

Schedule 1 – Part 3 – City-wide Infrastructure Wastewater

PROJECT	LIPS No.	CAPITAL COST			ADJUSTMENT FACTORS			CAPITAL COST ALLOCATION		CONTRIBUTION PER UNIT OF DEMAND	
		PC - TOTAL CAPITAL COST	LESS AMOUNT SIF FUNDED	BALANCE TO BE FUNDED	GB - GROWTH BENEFIT	RC - REQUIRED CAPACITY	OB - OTHER BENEFIT	GC - GROWTH FUNDED PORTION (A)	OTHER FUNDED PORTION	HOUSEHOLD UNIT EQUIVALENTS (B)	COST PER UNIT (A/B)
Chapel St Treatment Plant											
Stage 1a upgrade to 20,000 m ³ /day	280155	\$1,054,432	\$0	\$1,054,432	1.000	1.000	0.912	\$961,642	\$92,790	29,487	\$32.61
Stage 1 b upgrade to 25,000 m ³ /day	295	\$10,348,847	\$0	\$10,348,847	1.000	1.000	0.912	\$9,438,148	\$910,699	29,487	\$320.08
Final Effluent pump wetwell	280156	\$1,400,000	\$0	\$1,400,000	1.000	1.000	0.912	\$1,276,800	\$123,200	29,487	\$43.30
Co Generation	280157	\$1,700,000	\$0	\$1,700,000	0.000	1.000	0.912	\$0	\$1,700,000	29,487	\$0.00
Odour control works	280158	\$1,164,084	\$0	\$1,64,084	0.350	1.000	0.912	\$371,576	\$792,508	29,487	\$12.60
subtotal		\$15,667,363	\$0	\$15,667,363				\$12,048,166	\$3,619,197		
TE MAUNGA TREATMENT PLANT											
Stage 1 development											
Treatment plant	280159	\$11,180,000	\$0	\$11,180,000	0.470	1.000	1.000	\$5,254,600	\$5,925,400	29,487	\$178.20
Wetland	280160	\$2,000,000	\$0	\$2,000,000	0.470	1.000	1.000	\$940,000	\$1,060,000	29,487	\$31.88
Aeration improvements	280161	\$446,063	\$0	\$446,063	0.470	1.000	1.000	\$209,650	\$236,413	29,487	\$7.11
Standby generator	280162	\$99,439	\$0	\$99,439	0.470	1.000	1.000	\$46,736	\$52,703	29,487	\$1.58
subtotal		\$13,725,502	\$0	\$13,725,502				\$6,450,986	\$7,274,516		
Stage 2 development											
Design of upgrades and bulk flow meters	280163	\$6,100,000	\$0	\$6,100,000	1.000	1.000	1.000	\$6,100,000	\$0	29,487	\$206.87
Aeration upgrade ditch No. 1											
Clarifier No.2 plus WAS and RAS pumps											
Screens (Pre-treatment)	2157	\$400,000	\$0	\$400,000	1.000	1.000	1.000	\$400,000	\$0	29,487	\$13.57
Stage 3 development											
Aeration upgrade	1902	\$1,179,000	\$0	\$1,179,000	1.000	1.000	1.000	\$1,179,000	\$0	29,487	\$39.98

Schedule 1 – Part 3 – City-wide Infrastructure Wastewater

PROJECT	LIPS No.	CAPITAL COST			ADJUSTMENT FACTORS			CAPITAL COST ALLOCATION		CONTRIBUTION PER UNIT OF DEMAND	
		PC - TOTAL CAPITAL COST	LESS AMOUNT SIF FUNDED	BALANCE TO BE FUNDED	GB - GROWTH BENEFIT	RC - REQUIRED CAPACITY	OB - OTHER BENEFIT	GC - GROWTH FUNDED PORTION (A)	OTHER FUNDED PORTION	HOUSEHOLD UNIT EQUIVALENTS (B)	COST PER UNIT (A/B)
Screens	1903	\$2,600,000	\$0	\$2,600,000	0.430	1.000	1.000	\$1,118,000	\$1,482,000	29,487	\$37.92
Relift pumps	1904	\$659,000	\$0	\$659,000	0.430	1.000	1.000	\$283,370	\$375,630	29,487	\$9.61
Cannibal	1906	\$6,612,000	\$0	\$6,612,000	0.690	1.000	1.000	\$4,562,280	\$2,049,720	29,487	\$154.72
Sludge dewatering	1907	\$3,790,000	\$0	\$3,790,000	0.650	1.000	1.000	\$2,463,500	\$1,326,500	29,487	\$83.55
Sludge treatment	1908	\$4,550,000	\$0	\$4,550,000	0.540	1.000	1.000	\$2,457,000	\$2,093,000	29,487	\$83.32
Standby generator	1909	\$1,992,000	\$0	\$1,992,000	0.430	1.000	1.000	\$856,560	\$1,135,440	29,487	\$29.05
Site services	1910	\$596,000	\$0	\$596,000	0.840	1.000	1.000	\$500,640	\$95,360	29,487	\$16.98
Surgetank	1911	\$1,865,000	\$0	\$1,865,000	1.000	1.000	1.000	\$1,865,000	\$0	29,487	\$63.25
UV disinfection	1544	\$2,595,000	\$0	\$2,595,000	0.430	1.000	1.000	\$1,115,850	\$1,479,150	29,487	\$37.84
Stage 5 development	2156	\$21,733,000	\$0	\$21,733,000	1.000	0.660	1.000	\$14,343,780	\$7,389,220	29,487	\$486.44
Stage 6 Development	2158	\$5,819,696	\$0	\$5,819,696	1.000	0.000	1.000	\$0	\$5,819,696	29,487	\$0.00
Stage 7 Development		\$6,787,833	\$0	\$6,787,833	1.000	0.000	1.000	\$0	\$6,787,833	29,487	\$0.00
Ponds conversion to wetlands & landscaping	293	\$5,867,440	\$0	\$5,867,440	1.000	0.510	1.000	\$2,992,394	\$2,875,046	29,487	\$101.48
subtotal		\$76,364,627	\$0	\$76,364,627				\$43,456,032	\$32,908,595		
DISCHARGE IMPROVEMENTS											
Chapel St to Te Maunga transfer main	280167	\$3,660,000	\$0	\$3,660,000	0.350	1.000	0.912	\$1,168,272	\$2,491,728	29,487	\$39.62
Te Maunga outfall pump station upgrade	280168	\$390,000	\$0	\$390,000	0.470	1.000	0.966	\$177,068	\$212,932	29,487	\$6.00
Chapel St wetlands	280169	\$3,300,000	\$0	\$3,300,000	0.350	1.000	0.912	\$1,053,360	\$2,246,640	29,487	\$35.72
Resource consent ocean outfall	280170	\$1,824,149	\$0	\$1,824,149	0.470	1.000	0.966	\$828,200	\$995,949	29,487	\$28.09
Outfall upgrade stage 1 - landward duplication	1550	\$7,725,624	\$0	\$7,725,624	0.270	0.420	0.966	\$846,299	\$6,879,325	29,487	\$28.70
Outfall upgrade stage 2 - seaward section	1556	\$6,900,000	\$0	\$6,900,000	0.270	0.420	0.966	\$755,856	\$6,144,144	29,487	\$25.63

Schedule 1 – Part 3 – City-wide Infrastructure Wastewater

PROJECT	LIPS No.	CAPITAL COST			ADJUSTMENT FACTORS			CAPITAL COST ALLOCATION		CONTRIBUTION PER UNIT OF DEMAND	
		PC - TOTAL CAPITAL COST	LESS AMOUNT SIF FUNDED	BALANCE TO BE FUNDED	GB - GROWTH BENEFIT	RC - REQUIRED CAPACITY	OB - OTHER BENEFIT	GC - GROWTH FUNDED PORTION (A)	OTHER FUNDED PORTION	HOUSEHOLD UNIT EQUIVALENTS (B)	COST PER UNIT (A/B)
subtotal		\$23,799,773	\$0	\$23,799,773				\$4,829,055	\$18,970,718		
Totals		\$148,890,454	\$0	\$148,890,454				\$72,473,275	\$76,417,179	TOTAL	\$2,457.80
<i>Note: Estimated Costs in Italics</i>					Revenue received 1991 to 2001			-\$4,117,585			-\$139.64
									Cost of Inflation		\$213.72
									Cost of Capital		\$465.46
									SUBTOTAL		\$2,997.34
							Impact of Low Demand Dwellings		6.81%		\$204.12
					Development contribution			\$68,355,690	TOTAL BIF		\$3,201.46

Schedule 1 – Part 3

City-wide Infrastructure – Transportation

4.0 City-wide Transportation

4.1 Funding Needs assessment in relation to the requirements of S101 (3) of the LGA

Scope of the Projects covered by this Activity

The projects funded by Tauranga City Council (TCC) through the Transportation Building Impact fee are those projects that are city-wide in nature and cannot be tied to any particular growth area or areas and that are only being completed, at least in part, because of growth. It does not relate to projects that replace existing assets or projects that provide access to the transportation network within individual growth areas.

Community Outcomes

The Community Outcomes identified for Tauranga city have been summarised in the city's Tauranga Tomorrow document. The provision of city-wide transportation assets contributes to a number of outcomes within Tauranga Tomorrow. These include:

- Easy to Move Around
- Vibrant Healthy and Diverse Communities
- Built to Fit our Hills Harbour and Coast
- Strong Sustainable Economy
- Living Well Wasting Less

These projects are also important in implementing Western Bay of Plenty's growth management strategy, SmartGrowth.

Distribution of Benefits

The principal benefit of these projects is that they expand and extend critical portions of the existing transportation network and allow greater numbers of residents to gain access to existing parts of the city. This benefit is conferred on new households and businesses across the city. In the short term, these projects also reduce congestion at these critical portions of the network. This benefit is conferred on existing households and businesses across the city.

Given the nature of these capital works Council believes that the impact of not completing these works will increase the congestion levels and therefore the travel times of all residents and businesses within the city as the city grows.

For each project, Council will identify costs related to addressing backlog (rates funded) and costs not related to backlog (growth). For the costs not related to backlog council will attribute 25 percent to rates to reflect benefit to the community from improvements in the network (the short-term reduction in congestion). The remaining 75 percent of costs not related to backlog will be funded from Development Contributions.

Period in or over which benefits occur.

The capital projects included are designed to ensure that all households and businesses across the city are able to gain access to existing parts of the city. We have assessed the period over which the benefits are to be divided to be the 2001 to 2021 planning period. The divisor used in our calculations is the expected number of new lots over this period.

Extent to which groups or individuals contribute to the need to undertake the activity

The group that creates the need for these works is residential and non-residential growth (i.e. new households and businesses) across the city. Development contributions allocate the cost of these works between existing residents and that growth community.

Costs and benefits of funding the activity distinctly from other activities

Given the benefits and causation factors outlined above, it is considered appropriate (in particular for transparency and accountability reasons) for the balance of these works, after taking into account the benefit to existing ratepayers, to be funded through a citywide contribution (BIF) rather than from a particular geographic area (SIF) or other funding sources such as rates or a UAGC.

Social, economic, environmental and cultural well-being

Council has considered the impact on the all sectors of the community, including the growth community which pays development contributions, of the proposed allocation of costs in terms of their social, economic, environmental and cultural well-being. It considers this allocation of costs to be fair and reasonable. The allocation details for this activity are clearly set out in this section.

4.2 Transportation Impact Fee

A city-wide (BIF) Transportation Impact Fee was introduced in the 2006/07 year. This is intended to recover transportation costs incurred over the next 20 years throughout the city where the respective projects are of a city-wide nature and cannot be tied directly to any particular growth area or areas.

The criteria to establish whether a project should be included as a BIF project is to ask the question: *If growth were to stop now, would we still proceed with this project at the planned size and scale?* If the answer is no then the following methodology is to be applied:

1. For each project identify:
 - Costs related to addressing backlog (rates funded);
 - Costs not related to backlog (growth).
2. For the Costs not related to backlog attribute:
 - 25 percent to rates to reflect benefit to community from improvements in the network.
 - 75 percent to growth to reflect that it primarily causes the need to incur the expenditure and receives the main benefit of that expenditure. (To be funded by transportation BIF)

4.3 Project Costs

All project costs have been provided by City Transportation and, except where they have already been completed, are included in Council’s Long-Term Council Community Plan/Annual Plan.

	QTY.	UNIT	RATE	AMOUNT
1.0 Traffic Lights				
Cameron Rd. / 9th Ave (replace roundabout) (LIPS 43)				\$432,600
Tamatea Arikinui / Cambridge Rd. offramp (LIPS 47)				\$180,250
Tamatea Arikinui / Cambridge Rd. onramp (LIPS 48)				\$226,600
Devonport Rd. / 11th Ave (replace roundabout) (LIPS 49)				\$988,800
Cameron Rd. / Hamilton St. (LIPS 50)				\$371,315
Cameron Rd. / 1st or 2nd Ave (LIPS 51)				\$371,315
Waihi Rd. / Bellevue Rd. (LIPS 52)				\$371,315
Fraser St. / Courtney Rd. / Baycroft St. (LIPS 53)				\$371,315
				\$3,313,510
11Th Avenue / St John St (LIPS 2135)				\$36,050
				\$3,349,560
2.0 Travel Demand Management (LIPS 69)				
Network development				\$226,600
Fibre Optic network				\$329,600
Surveillance strategy implementation				\$41,200
Corridor demand management implementation				\$89,566

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	QTY.	UNIT	RATE	AMOUNT
General travel demand management				\$600,000
				\$1,286,966
3.0 Walkway / Cycleways				
Removed from BIF Schedules				
4.0 Land Purchases (District Wide) (LIPS 557)				
Land purchases - Corner Splays etc.		L.S.		\$6,013,501
				\$6,013,501
5.0 Millers Road / Brookfield / Otumoetai Intersections (LIPS 225)				
Install traffic lights at Millers Road / Bellevue Road	1	@	\$530,000	\$530,000
Install traffic lights at Bellevue Road / Otumoetai Road	1	@	\$540,000	\$540,000
				\$1,070,000
Less Contributions made to date (63% share)	2136	@	\$91.48	-\$195,400
Less Rate funded proportion (37% share)				-\$114,759
				\$759,840
7.0 Welcome Bay Road. (LIPS 21)				
Widen Rd.				\$2,441,100
8.0 Pedestrian Underpasses / Overbridges. (LIPS 567)				\$2,604,000
9.0 Road Widening (LIPS 1883)				
Totara Street – widening		Eng Estimate		\$1,300,000
TOTAL BIF FUNDED TRANSPORTATION COSTS				\$18,065,127

TRANSPORTATION DEVELOPMENT IMPACT FEES - CITYWIDE INFRASTRUCTURE (BIF)								
LIPS No.	PROJECT	TOTAL PROJECT COST	BUILDING IMPACT FEE (% of total project cost)	RATES IMPACT (% of total project cost)	OTHER IMPACT FEE (% of total project cost)	BUILDING IMPACT FEE (Non local service)		
						COST	HUEs	COST PER UNIT
	CITYWIDE CONTRIBUTIONS							
47-53 2135	Traffic lights	\$3,349,560	75	25		\$2,512,170	45776	\$54.88
69	Travel Demand Management.	\$1,286,966	75	25		\$965,225	45776	\$21.09
557	Land Purchase	\$6,013,501	75	25		\$4,510,126	45776	\$98.53
225	Millers Rd. / Brookfield Rd. / Otumoetai Rd.	\$1,070,000	53.26	46.74		\$569,882	45776	\$12.45
21	Welcome Bay Rd.	\$2,441,100	50	50		\$1,220,550	45776	\$26.66
567	Pedestrian underpasses / Overpasses	\$2,604,000	50	50		\$1,302,000	45776	\$28.44
1883	Totara Street Widening	\$1,300,000	24	76		\$312,000	45776	\$6.82
	Cost of Inflation	\$1,630,999	100	0		\$1,630,999	45776	\$35.63
	Cost of Capital	\$5,528,368	100	0		\$5,528,368	45776	\$120.77
	Subtotal	\$25,224,493				\$18,858,837		\$405.26
	Impact of Low Demand Dwellings						6.81%	\$27.60
	TOTAL BIF	\$25,224,493				\$18,858,837		\$432.86