



Traffic Calming Measures implementation policy





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Contents

Introduction	4
Objectives	5
Benefits and effects	5
Types of controls	6
Vertical displacement controls (speed humps)	6
Horizontal deflection controls (chicanes)	6
Scheme implementation process	8
Criteria	13
Initial assessment criteria	13
Technical assessment criteria	14
Policy statement	18
Implementation	18
Funding	18
Appendix A	19
Scheme implementation process flowchart	19
Bibliography	20



Introduction

Each year the Gisborne District Council receives many requests from local residents for the installation of Traffic Calming Measures (TCMs). Their concerns can be summarised into two main issues:

- Motorists travelling faster than the permitted speed limit.
- Vehicles using their residential street as a thoroughfare.

This intrusion can spoil a previously quiet neighbourhood prompting local communities to look to Council for relief.

Generally this leads to requests for the installation of controls such as speed humps, chicanes, or intersection narrowing.

The purpose of this document is to record the Council's selection criteria for the installation of TCMs. This policy document will investigate the merits of each request, determine whether traffic-calming measures are appropriate, and explain the funding criteria.

Objectives

High traffic volumes and speed in a residential street can affect

- Safety, increasing the risk of an accident and its severity.
- The residential environment due to unnecessary traffic use, increased traffic noise and restricted movement across the road for pedestrians.

TCMs are generally introduced to alleviate one or all of the above problems. They are generally carried out on existing roads and involve the installation of controls such as speed humps, chicanes and intersection restrictions.

The objective is to modify the street to provide an environment which

- Provides a high level of safety for all street users including motorists, pedestrians and cyclists.
- Makes residential streets pleasant places by minimising the impact of traffic.

Benefits and effects

The installation of TCMs should result in one or more of the following:

- Fewer accidents.
- Lower vehicle speeds.
- Lower traffic volumes, particularly through-traffic.
- Exclusion of undesirable traffic (such as heavy vehicles and speedsters).

In striving to meet these objectives within one residential street, consideration must be given to the effect on the adjacent street network. This will ensure that the problems are not merely transferred and that the adjacent streets are able to cope with any additional traffic that may divert.

While there are benefits to be gained within the affected area, residents may also face adverse consequences created by the changes. These impacts need to be recognised by the community requesting the modifications, as they are the users who are going to be the most affected.

The adverse effects may include the following:

- Loss of on-street parking especially adjacent to the traffic calming controls, such as chicanes and speed humps.
- Increase in noise due to braking and acceleration of vehicles (particularly if they are heavy vehicles).
- Restricted access to properties adjacent to where controls are installed.
- Reduced emergency and service vehicle access or increased response time to emergencies.
- Diversion of traffic to other residential streets where the impact of traffic is equally undesired.

While the intrusion of traffic onto a local residential street may impact on the local residents, the rights of other users also need to be considered. It may therefore be necessary to achieve a compromise between the local interests and the wider community's need for mobility, particularly commercial traffic.

It is important that the benefits arising from meeting the desired objectives are not outweighed by the adverse effects as outlined above. It is also important that residents understand and accept both the advantages and disadvantages at an early stage before any detailed work is carried out.

Types of controls

This section describes the types of controls most commonly used and reviews their effects. Each scheme will differ in its characteristics and therefore should be assessed individually using experiences from other road controlling authorities as a guide. Normally, schemes will include a combination of the controls listed below.

Controls can be described in two basic categories:

- Vertical displacement controls (e.g. speed humps).
- Horizontal deflection controls (e.g. chicanes).

The common characteristic of the controls is that their physical form forces or restricts a specific action.

They do, however, have disadvantages in their cost (including ongoing maintenance costs), with their effect on emergency vehicles, loss of on-street parking and loss of accessibility to some parts of the neighbourhood.

Vertical displacement controls (speed humps)

Vertical displacement controls are short raised areas of roadway extending across the road. These are the best known form of control and, not surprisingly, the most commonly requested. Speed humps have a curved profile and rise to 100mm in height. Design of the humps may differ to suit different vehicle types and speeds.

The position of the control must ensure it does not adversely affect access to properties or carriageway drainage. Depending on their length this can often be difficult to achieve.

This type of control is not recommended for use on roads with steep gradients or when the road must be used by a reasonable number of heavy or commercial vehicles. The type and design of the control needs to take into consideration whether the road is a bus route.

The basic purpose of devices such as speed humps is to control speed, however, the actual design and uniformity of construction is critical to their performance.

Used in conjunction with road narrowing some visual improvements to the streetscape can be achieved as they offer an area that may be landscaped. The use of landscaping is recommended as it helps to emphasise the control and create a more restrictive environment in the eyes of the motorist.

However, the type of landscaping used must be carefully selected to avoid restricting visibility from driveways or of pedestrians. Landscaping can also assist in offsetting some of the disadvantages to residents who have the controls located outside their properties as it can improve the look of their property frontage.

Horizontal deflection controls (chicanes)

Horizontal deflection controls involve the realignment of the kerblines over a short length of road (typically 10 metres to 15 metres). The aim is to eliminate long, wide straight sections of road and this is generally achieved by kerbside islands and/or central islands.



Horizontal controls offer more scope to improve the appearance of the street, as there is generally more space that may be landscaped. The use of landscaping is recommended as it helps to emphasise the control and create a more restrictive environment in the eyes of the motorist. However, the type of landscaping used must be carefully selected to avoid restricting visibility from driveways or of pedestrians.

Landscaping can also assist in offsetting some of the disadvantages to residents who have the controls located outside their properties as it can improve the look of their property frontage. The major drawback is they can often be seen as an obstacle challenge by motorists, thus to overcome this, a speed hump may also need to be implemented.

Gateway improvements

The most common treatment for local residential streets is the use of gateway improvements. This physically narrows the road at or near the entrance to a local street to enhance the residential nature of the area. They make drivers aware that they are entering a street in which care is needed and are usually the first control encountered by the motorist.

The roadway entrance is narrowed by extending the kerb or by introducing a central median island. For additional effect a minor speed bump may be placed at the entrance as well. Gateways can be positioned on the street adjacent to the intersection or along the route to indicate the start of the affected area.

The entranceways are sometimes landscaped for aesthetic reasons and it also reinforces to the motorist that they are entering a residential area. One downside of the kerbside islands is they can tend to trap rubbish and debris. This often creates an untidy streetscape, which has led residents living adjacent to these controls to complain.

Scheme implementation process

TCMs are generally implemented only after all other alternatives have been considered. The Council must be sure that a real problem exists.

The scheme implementation process ensures that a systematic approach to the analysis and implementation of schemes is used and that they are identified as being the correct solution. **The process also ensures the schemes are supported by the majority of the residents.**

There are three key aspects to the implementation process:

- Is the installation of a TCM the appropriate solution?
- Will increased or targeted enforcement resolve the issue? Any process will involve discussions with the NZ Police in regards to historical enforcement issues. Does the street have a history of speeding offenders?
- Is the proposed solution supported by the local residents and other affected parties such as bus operators and emergency services?

This process has been developed to ensure that residents' requests are investigated in a consistent manner and that appropriate schemes are put in place. The steps in the process, known as the scheme implementation process, are shown on the flowchart in Appendix A and the primary steps are described below.

STEP ONE – Initial enquiry

Aim  To provide the residents with information on the policy and implementation process so they can make informed decisions and obtain the necessary support from the affected community.

The need for a TCM generally arises from a request by a resident or residents of a street where they perceive that the traffic characteristics of their street (i.e. volumes, speed, accident history) are making the neighbourhood an unpleasant or unsafe place to live.

Council normally receives requests through correspondence from a resident or residents' group, petitions or by telephone. When a request is received, a leaflet detailing the procedures, the advantages and disadvantages and residents' responsibilities will be sent to the applicant.

In regard to petitions, all correspondence will be directed to a spokesperson who will be responsible for disseminating the information to the signatories.

The suitability of the street should be assessed according to the following:

- The street should be a local residential street.
- The proposal has the support of at least 75% of the homeowners who live in the street.
- When submitting the petition all residents are in agreement that a TCM may be installed outside their residence (potentially increasing noise and restricting manoeuvrability entering and exiting their premise).
- A copy of the petition is also sent to the traffic section of the NZ Police.

Due to road safety factors and heavy vehicle convenience factors the following roads will not be considered for TCMs:

- Roads with speed limits above 50km/hr.
- Unsealed roads.
- Major traffic routes – arterial and collector roads (e.g. Ormond Road).
- Bus routes.
- Industrial subdivision areas.
- Residential roads, which are excessively steep and cause difficulties for service vehicles i.e. refuse and recycling trucks.

STEP TWO – Initial assessment

Aim  To assess the merits of a formal request and to determine whether a TCM is the appropriate solution.

The area engineer will make the initial assessment after considering the request. Traffic volumes and accident statistics will be evaluated.

The area engineer should visit the site to determine whether the topographical and traffic characteristics of the street are suited to the installation of a TCM scheme.

If the initial assessment indicates that the request is a TCM contender it will proceed to the technical assessment as described in step three of the process.

If the initial assessment indicates that a TCM scheme may not be the appropriate solution but other engineering solutions may suffice, e.g. road problems could be rectified by increased signing of difficult bends, improved street lighting to alleviate night time accidents or improving road surfaces and/or signage where accidents are occurring through drivers losing control of their vehicles, then these shall be followed up for appropriate action.

If the request does not meet the initial requirements then the residents will be informed accordingly.

STEP THREE – Technical assessment

Aim  To undertake a technical assessment of the merits of the proposed TCM to ensure that the scheme is technically feasible and to determine the type and extent of treatment required.

Council's roading staff will carry out the technical assessment. Traffic volumes, average speeds, accident history, traffic composition information will be researched. (Note: only accidents that may have been alleviated or minimised by the proposed improvements will be considered during the investigations. For instance, alcohol related accidents would not be evaluated.)

It may also be necessary to gather information on traffic generation characteristics from adjacent developments and use of on-street parking. This data is important to determine the severity of the problem before developing a solution and later evaluation of a TCM.

Initial consultation will be held with the residents' spokesperson so that the residents' concerns and local knowledge are put to their best use.

It will also investigate the effects on neighbouring streets and determine whether the scope of the proposed solution needs to be expanded to include adjacent streets.



A schematic layout indicating the possible types, locations and numbers of controls required will be developed and a rough cost estimate of the work calculated.

STEP FOUR – Acceptance ranking

Aim  To provide a formal and consistent basis to determine whether the proposed solution meets the specified technical criteria and report the findings to the assets committee.

The results of the investigations conducted in step three will be categorised and ranked depending on their severity or benefits and an Acceptance Value (AV) formulated. Each criterion will be ranked with the most desirable features given the highest grade and the less desirable features at the lower end of the scale. The AV is then calculated by the addition of all the ranked criteria. An AV greater than 25 indicates that the proposed treatment shows technical merit.

The extent of the investigation and subsequent report will depend on the resources available and the ability to gather the required data. The report should include the schematic layout and indicative costs. A copy of the report will be forwarded to the residents' spokesperson for their information.

The report will then be forwarded to the appropriate committee of Council (currently assets committee) and if supported the proposal would then be added to the list of minor safety works contenders to be implemented when funding becomes available.

STEP FIVE – Scheme implementation list

Aim  To provide a listing of all approved schemes in order of priority so they can be compared on a city-wide basis.

All approved requests will be included on the scheme implementation list in order of their AV ranking.

The rankings of all listed schemes will be reviewed each year by the assets committee prior to projects being considered for funding in the next year's annual plan. The committee may change the order of priority of each scheme as they see fit. Lower ranked projects may be advanced if there is other committed work in the street, for instance a stormwater renewal project.

Note: The inclusion of a project on the scheme implementation list does not guarantee that funding for that project will be allocated in Council's Long Term Council Community Plan (LTCCP). Budgets for each work category, including implementation of TCM schemes, are allocated during the LTCCP process. This means that whether any scheme proceeds is dependant on its cost, its priority ranking and the level of funding available in the LTCCP.

STEP SIX – Project audit

Aim  To ensure the proposed solution meets all appropriate design standards and will not themselves become a hazard or reduce safety.

The roading asset manager will undertake a review of the proposed scheme. The audit provides an independent check that the proposed design/scheme is safe and that nothing has been omitted that may create a problem.



STEP SEVEN – Project construction

Aim ▶ To implement the scheme.

Once the scheme has confirmed funding the treatment will be constructed in the year the funding is allocated.

STEP EIGHT – Evaluation

Aim ▶ To ensure the works have been successful and to analyse the project so the results can be applied to future schemes.

The success of the scheme will be evaluated approximately 12 months after implementation to see if it has been successful and the initial objectives have been met. The evaluation will involve a site meeting with the original with the residents' representative.

Accident history over the previous year will also be researched.

If the review indicates the scheme's objectives have not been met, further investigations will be carried out to identify deficiencies and recommend modifications.

Note: The evaluation process is also important as it identifies the controls and types of schemes which bring the greatest benefit so they can then be used in future schemes.

Criteria

Initial assessment criteria

These criteria are included to assist all stakeholders in the determination process as to whether or not a scheme is worthy of consideration.

The suitability of the street should be assessed according to the following.

The street **should**

- Be a local residential street.
- Have suitable alternative routes to absorb diverted traffic.
- Have a recorded accident history.
- Have the identified problem occurring along the length of the street and not at one particular location.
- Have the proposed treatment **supported by at least 75%** of affected residents.

The street **should not**

- Require treatment over a length greater than 1 km.
- Roads with speed limits above 50km/hr.
- Unsealed roads.
- Major traffic routes – arterial and collector roads (e.g. Ormond Road).
- Bus routes.
- Industrial subdivision areas.
- Residential roads, which are excessively steep and the installation of TCMs would cause difficulties for service vehicles i.e. refuse and recycling trucks.

The initial assessment should consider the street geometry as this plays an important part in the behaviour of motorists who use that street and the speed at which they travel. Typically speed along the street will vary with the street geometry, slow at entry (i.e. adjacent to the intersection), accelerating to a maximum, then decelerating to the end of the street, intersection or tight bend.

Only on a long straight or through a long gentle curve will the maximum speed be sustained. It is in these sections of a street that a TCM will have its greatest effect.

While the street may not meet all these criteria it **must** meet the requirement of obtaining at least **75% resident support** to be recommended for further investigation.

A high level of residents' support is essential because residents themselves have to live with reduced on-street parking, increase in noise and changes to access. It is important at this stage for residents to understand and accept that while there are advantages to be gained by the installation of a TCM scheme, there are also disadvantages. The impact is especially felt by those residents who have controls installed outside their properties.

▶ If residents cannot accept the advantages and disadvantages at an early stage then it is unlikely that they will accept the final scheme. Without their support the scheme simply will not succeed. ◀

Residents must also accept that a control may be located outside their own property.

Technical assessment criteria

The following six criteria are included as a guide to council engineering staff carrying out the technical assessment of a request and to ensure a consistent approach is adopted when assessing requests.

Each criterion will be ranked. The higher the ranking the more suitable the particular criteria is for treatment. An assessment value is then calculated using the following formula:

$$\text{Assessment Value (AV)} = \text{Sum of all criteria rankings}$$

To be recommended for the next stage in the implementation process a proposal would need to obtain an AV of greater than or equal to **25**.

1. Road geometry

The road should be reasonably flat and straight with no steep gradients or sharp bends close together.

Reason ▶ Vehicle speeds along a street will usually vary depending on the road characteristics. A wide straight road with extended visibility encourages a higher speed. On the other hand, winding and/or narrow roads tend to be treated with greater caution and lower speeds. Because of this these types of streets are unlikely to benefit from lower speeds if a TCM scheme was introduced.

Any control or obstacle constructed must not create a safety problem. Controls should be located so that they can be clearly seen from an appropriate distance. This is to ensure drivers have sufficient time to modify their speed or take evasive action if necessary. Appropriate sight distances can be difficult to achieve on tight winding and undulating roads as forward visibility on this type of road tends to be limited.

If the control cannot be seen sufficiently in advance then motorists could cross them at speed which could result in dangerous vehicle manoeuvres and property damage.

The gradient factor can be important because heavy vehicles and vehicles towing trailers may have difficulty negotiating the hump or chicane especially if forced to stop. In addition drainage on the higher side of the controlling measure can become a problem on steep grades.

Scale	Geometry	Rank
	Straight and level	5
	Moderate curves and moderate gradient	3
	Tight bends with steep gradient	0



2. Footpaths

The installation of footpaths reduces the conflict between motorists and road users.

Reason ▶ The lack of a footpath along a residential street raises potential risks to pedestrians. It has to be assumed that they are more likely to walk along the road and therefore the risk of an accident with a motorist is much higher.

Scale	Footpath status along street	Rank
	No footpath	5
	One footpath	3
	Two footpaths	0

3. Accidents

The proposed street should have a documented accident history of a type that could benefit from a TCM scheme.

Reason ➤ An important objective of a TCM scheme is to improve road safety by reducing the number and/or severity of accidents. Therefore the greatest benefit to the community is realised by treating locations at which accidents are known to be occurring.

Accident details and locations provide important information for the formulation and design of the appropriate treatment. If, for example, motorists are losing control on a bend due to high speeds, then a TCM scheme may be the appropriate solution. However, if they are losing control travelling at low speeds then it may be more beneficial to improve the road surface, road lighting or signing of the bend rather than to install an extensive TCM scheme.

Scale	Accidents	Rank
	Three injury accidents in five years	15
	One injury accident in five years	10
	Three non-injury accidents in five years	8
	Potential for accidents involving pedestrians	4
	Potential for accidents not involving pedestrians	2

4. Heavy vehicle usage

The street should cater for a low volume of heavy or commercial vehicles and preferably not be a bus route.

Reason ➤ The main function of a residential street is to provide access to the residential properties that front it serves and hence they are not designated to or expected to carry a high number of heavy vehicles.

Commercial/industrial traffic should be encouraged to use the arterial street system as their use of a residential street can create significant discomfort to residents by increasing traffic noise, vehicle exhaust fumes and vibration.

If heavy vehicle use is high, then a TCM scheme may be beneficial.

TCM schemes can be particularly appropriate where the street has two distinct sections with one section catering for residential development and the other for commercial or industrial development. In these circumstances the residential section of the street may be being used as short cut to the commercial or industrial area. In these cases residents may benefit from a TCM scheme that restricts and discourages heavy vehicles using that section of the street.

TCM schemes can cause problems to bus services, providing an uncomfortable ride to passengers and causing discomfort to bus drivers who may have to negotiate the controls several times each day. If the bus route includes several streets with traffic calming installed then an increase in journey times could be incurred which may make it difficult for economic timetables to be followed.

TCMs place a greater restriction on public transport than for private motorists and passengers and, of course, private motorists have the option of choosing an alternative route. For these reasons the use of TCM schemes on bus routes should be discouraged.



Scale	Heavy vehicle volumes	Grade
	High (>5% of total volume) or mixture of residential/industrial development	5
	Medium	3
	Low (<1% of total volume) or bus route	0

5. Road length

TCM schemes should only be considered on streets between 250 metres and 1km in length while cul-de-sacs should generally not be considered.

Note: On streets exceeding 1km it may be appropriate to treat only the part of the street where the problems are occurring. In these instances the problem area must be able to be clearly defined and separated from the rest of the street.

Reason ► The greater the length of street to be treated then the more controls that are required, and the more restrictions imposed on the residents. On longer streets this can create unreasonable delays and frustration for motorists who have to use the street regularly. It also can unduly affect access to emergency vehicles increasing their ability to respond quickly to an emergency situation.

Short roads or cul-de-sac type streets are not considered appropriate for TCM schemes as due to their short length it can be difficult to locate controls. These types of streets are self-enforcing as they

normally have narrow road widths and their length does not encourage high speeds. This type of street may, however, benefit from a gateway treatment at the intersection.

Scale	Length	Rank
	250m to 500m	5
	500m to 750m	3
	<250m or >1000 or cul-de-sac	0

6. Vehicle speed environment

The immediate roading environment may not discourage motorists to drive within the 50km/h speeding limit.

Reason ➤ Motorists have a tendency to creep above the residential speed limit if they perceive the roading environment is capable of higher speeds. Aspects like extensive open spaces and wide road widths can give an impression to the driver that the nominated speed limit is too sluggish.

Scale	Vehicle speed environment	Rank
	High speed potential	5
	Medium speed potential	3
	Low speed potential	0

Policy statement

Implementation

Traffic Calming Measures (TCMs) may be implemented providing there is a need and that the procedures and criteria described in this document are met. To fulfil these criteria, projects would have to meet a minimum AV of 25. Those that receive an AV of 15 or less will not be considered for further evaluation.

Projects are to be implemented on a ranked basis dependant upon the availability of funds. It is likely that the projects will be included as Minor Safety Projects (MSP) candidates as the main purpose is the reduction of accidents. The ranking system will give highest priority to those schemes showing the greatest benefit to the community. Rankings will be reassessed on a yearly basis.

Funding and selection criteria

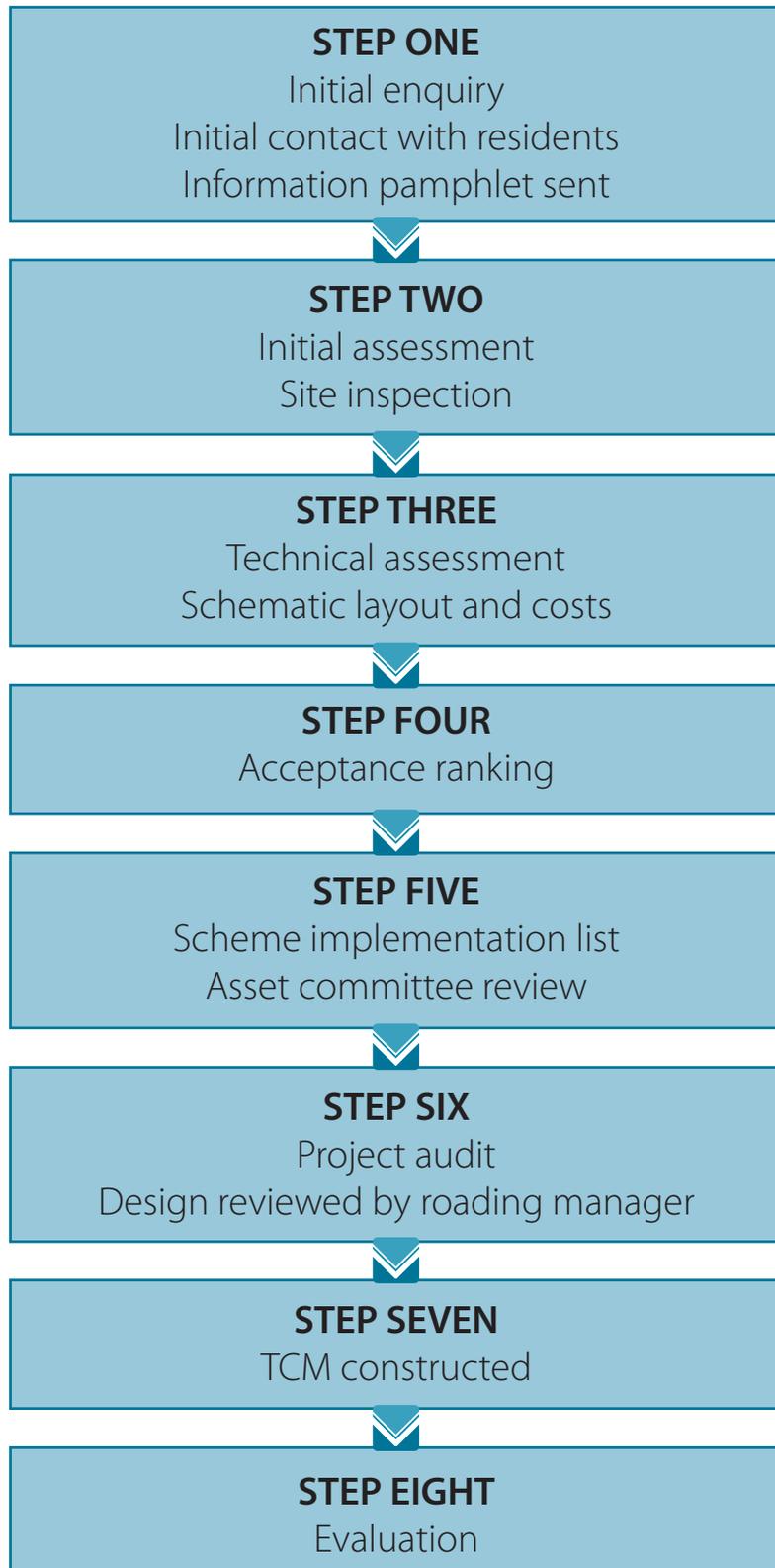
TCM projects that receive a ranking of 25 and above would be 100% funded by the Gisborne District Council. These are likely to be highly ranked MSP candidates in their own rights.

TCM projects that receive a ranking between 16 and 24 would still be included as MSP candidates. However, they would be competing with the full list of other MSP proposals for that year.

TCM projects that receive an AV of 15 or less would not be considered for further evaluation.

Appendix A

Scheme implementation process  flowchart



Bibliography

- ▶ Austroads (Part 10) – Guide to Traffic Engineering Practice – Local Area Traffic Management.
- ▶ Manakau City Council – Local Area Traffic Management Policy.
- ▶ Auckland City Council – Local Area Traffic Management Policy.
- ▶ Land Transport Safety Authority (formerly Road Transport Division – Ministry of Transport): Traffic Engineering Information Bulletin – Guidelines for the Use and Construction of Speed Control Humps 1987.

A stylized graphic in shades of teal and blue, featuring a sun with rays and wavy lines representing water, positioned in the upper right quadrant of the page.

Traffic Calming Measures application and assessment criteria

Application and technical assessment criteria

Application information

Name:

Address:

Contact phone number:

Location – street number: (street in question)

Reason for application:

Assessment criteria met? YES NO

Assessment sheet score total:

The following criteria are included as a guide to Council engineering staff carrying out the technical assessment of a request and to ensure a consistent approach is adopted when assessing requests.

Each criterion will be ranked. The higher the ranking the more suitable the particular criteria is for treatment. An Assessment Value is then calculated using the following formula:

$$\text{Assessment Value (AV)} = \text{Sum of all criteria rankings}$$

To be recommended for the next stage in the implementation process a proposal would need to obtain an AV of greater than or equal to **25**.

Council engineering staff will complete the attached assessment sheet below to see if you meet the minimum criteria points.

Assessment criteria worksheet

ROAD GEOMETRY

The road should be reasonably flat and straight with no steep gradients or sharp bends close together.

Rating	Straight and level	5	Moderate curves and moderate gradient	3	Tight bends with steep gradient	0	Score
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FOOTPATHS

The installation of footpaths reduces the conflict between motorists and road users.

Rating	No footpath	5	One footpath	3	Two footpaths	0	Score
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ACCIDENTS

The proposed street should have a documented accident history of a type that could benefit from a TCM scheme.

Rating	Three injury accidents in five years	15	One injury accident in five years	10	Three non-injury accident in five years	8	Score
	Potential for accidents involving pedestrians	4	Potential for accidents not involving pedestrians	2			

HEAVY VEHICLE USAGE

The street should cater for a low volume of heavy or commercial vehicles and preferably not be a bus route.

Rating	High (>5% of total volume) or mixture of residential/industrial development	5	Medium	3	Low (<1% of total volume) or bus route	0	Score
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ROAD LENGTH

TCM schemes should only be considered on streets between 250 metres and 1km in length while cul-de-sacs should generally not be considered.

Rating	250m to 500m	5	500m to 750m	3	<250m or >1000 or cul-de-sac	0	Score
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VEHICLE SPEED ENVIRONMENT

The immediate roading environment may not discourage motorists to drive within the 50km / hr speeding limit.

Rating	High speed potential	5	Medium speed potential	3	Low speed potential	0	Score
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TOTAL SCORE



Funding and selection criteria

TCM projects that receive a ranking of 25 and above would be 100% funded by the Gisborne District Council. These are likely to be highly ranked Minor Safety Project (MSP) candidates in their own rights.

TCM projects that receive a ranking between 16 and 24 would still be included as MSP candidates however they would be competing with the full list of other MSP proposals for the year.

TCM projects that receive an AV of 15 or less would not be considered for further evaluation.

