
LOOKING AT THE STRIP: REVITALIZATION OF HIGHWAY 101

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Plan 548B

Submitted to Penny Gurstein

1 THE PRESENT AND FUTURE OF HIGHWAY 101

1.1 STRIP CHARACTERISTICS

The commercial strip that has developed along Highway 101 between Pratt Road and North Road dominates Upper Gibsons. Anchored in the east by Gibsons Park Plaza and in the west by the North Road entrance into the Town of Gibsons, this section of road has the potential to act as a vibrant town centre. A mix of public uses, including a school, arena and pool facility, churches, and two heritage buildings lines the highway. But instead, these buildings are lost in a visually unappealing, inhospitable streetscape of strip malls, gas stations, and light industry. The stretch of Highway 101 in Upper Gibsons is typical of commercial strips, in which development takes place linearly along the highway, disconnected from the form and function of uses that lie behind. There is little mix of residential with commercial uses, so while people can be found in the restaurants and other businesses along the highway, there are few bodies on the street. The strip is not geared for pedestrians. Frontages are set far back from the street, and there is a dearth of greenery. For fast moving vehicles, however, the strip with its large signs and long stretches of road, is manna.

1.2 FUTURE VISION

The Town of Gibsons recognises that the character of Upper Gibsons needs to change in both form and function. Its Official Community Plan (OCP) sets a vision for Upper Gibsons that mixes housing, commercial, and community uses to create a dynamic town centre. People also realise that Highway 101 needs to function as an attractive entrance to the town – encouraging visitors to the Sunshine Coast to slow down, take a closer look at Gibsons, and even take a detour down to the harbour. The conundrum is how to reconcile this desire to create a vibrant, thriving commercial centre, with the function of the highway as a transportation route. The road has the status of Provincial highway, and is designated a major arterial road in the OCP. In other words, the primary

Council Objectives for Upper Gibsons:

- *Support the development of Upper Gibsons as the primary commercial centre for Gibsons and the surrounding area.*
- *Support higher density housing as an important component of land use in Upper Gibsons.*
- *Support redevelopment of automotive and industrial uses on Highway 101 to more compatible commercial and retail*

**Town of Gibsons
Official Community Plan**

Revised June 1999

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function of Highway 101 is to provide high mobility and low access, and not be bogged down by the messiness of people and their cars as they pick up groceries, get their photographs developed, and go about the business of everyday life.

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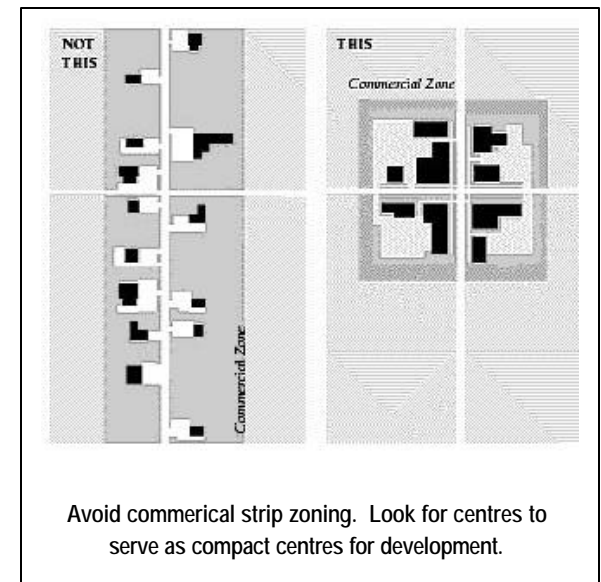
This paper offers some ideas on how to approach reconciling the form and function of Highway 101 as both an arterial road and a people-friendly, commercial centre. The concept of access management is introduced, because the problems of Highway 101 are about both land use and transportation, and not simply the latter. Secondly, a number of concepts or guidelines for creating engaging street life are examined. And lastly, two possible street patterns for Highway 101 are presented.

2 GUIDELINES FOR ACCESS MANAGEMENT

2.1 GOALS OF ACCESS MANAGEMENT

Revitalisation of Highway 101 is closely linked to larger issues of future land use in the surrounding area. Particularly as Upper Gibsons sets out to develop a stronger commercial presence and incorporate more housing, greater attention needs to be paid to access management. More commercial activity and housing will generate additional pedestrian and vehicle traffic, especially the latter, if land uses are spatially separated. On the other hand, if housing is integrated into compact, mixed-use centres of growth, more people will be encouraged to walk. The concept of access management is important because it is not simply about moving traffic more quickly, but rather, it is a larger concept of “planning, design, and implementation of both land use and transportation strategies [to] control the flow of traffic between the road and surrounding land.”¹ Some of the aims of access management are to reduce congestion for regional traffic, promote desirable land use patterns, and improve safety for all users of the highway – for pedestrians, cyclists, and local residents driving onto the highway. Access management also has financial implications: a more efficient road system will improve access and thus increase adjacent land values, and it also relieves some pressure to invest in additional highway improvements for regional traffic.

¹ Elizabeth Humstone and Julie Campoli, “Access Management: An Overview,” *Planning Commissioners Journal*, Issue 29 (1998). Available at <http://www.plannersweb.com/access/accintro.html>.



Strategies for Land Use

Source: Humstone and Campoli.

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2.2 STRATEGIES FOR LAND USE

Strategies to achieve desirable land use patterns that further the goals of access management include to:

- C-1:** Avoid reinforcing the current pattern of the narrow, commercial strip. Confine any new commercial and light industrial developments to within the eastern and western boundaries set by Pratt and North Roads.
- C-2:** Concentrate growth in centres that have mixed uses and higher densities than in the surrounding area. Differentiated nodes of compact growth will relieve the monotony of the highway and form destination points for the public transit system that the Town is considering. Mixing housing into these growth nodes will bring people and energy onto the streets, while the presence of retail activity in the vicinity will reduce the need for these residents to drive.

2.3 STRATEGIES FOR THE ROADWAY AND SITE DEVELOPMENT

Strategies to promote desirable roadway and site patterns that further the goals of access management include to:

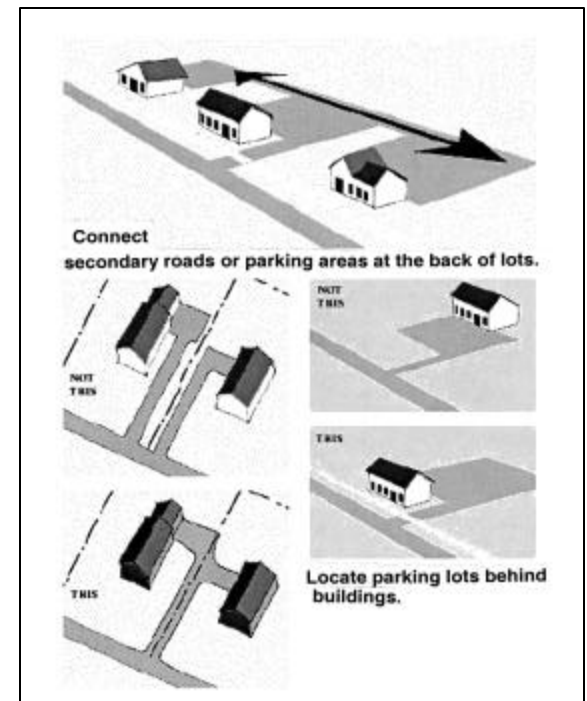
- C-3:** Develop a secondary street network and reduce the number of curb cuts and driveways onto the highway. At present, a number of streets such as at Mahan, Sunnyc rest, and Shaw all end at the highway. These local roads need to be carried through and integrated into, what is currently lacking, a network of secondary streets that run in an east-west direction. The development of 'backage' streets running parallel to the highway would provide local access to abutting properties and control entry onto to the main thoroughfare. Presently, an inordinate number of driveways, which create curb cuts, reduces the fluidity of highway traffic and creates unfriendly, unsafe sidewalks for pedestrians. Where possible, place parking lots behind buildings, consolidate the number of driveways, and design driveways to exit onto secondary roads instead of the highway.
- C-4:** Work with developers to provide master planning for new developments according to the

If the future of the Town of Gibsons lies in small, independent business, live-work spaces could provide an alternative way of mixing land uses:

"My business is my life."

Andrew Leddy,
Antique Store Owner,
who takes customers upstairs to look
at furniture in his living room

Source: Deborah K. Dietsch, "Homework: When Your Business is Your Life, Living Above the Store Has Its Benefits," *Washington Post*, 18 November, 2000, Page G01.



Strategies for Roadway Development

Source: Humstone and Campoli.

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strategies noted above, that is, through concentrated growth in mixed-use centres, shared driveways and parking lots, and site access through secondary streets. New developments should be integrated with other projects and blended with the existing fabric, specifically, by creating internal pedestrian and vehicle links between sites.

- C-5:** Plan for pedestrian and bicycle use as an integral part of the highway, through generous sidewalks, marked bicycles routes or physically separated lanes, bike racks, and public transit stops, as such a system develops.

3 GUIDELINES FOR ENGAGING STREET LIFE

3.1 ASPIRATIONS FOR THE STREETScape

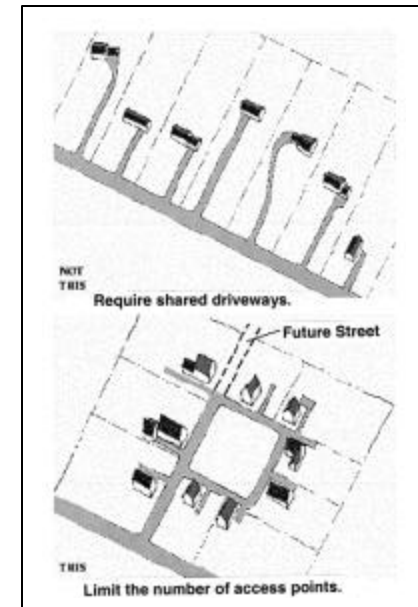
People want a quality place to live, and part of that experience is to have quality streets where one can comfortably walk, people-watch, bump into friends, and have informal, unplanned interactions. This is especially important for young people who need social spaces to be themselves – they are inundated with the formal activities of school, sports teams, music lessons and the like, and when they just want a place to meet up with friends in Upper Gibsons, it seems inadequate to have only the alternatives of a local coffee shop or video store. Highway 101, with its mix of institutional, community, and commercial uses, has the potential to be used as an informal, outdoor living room, where not just the young, but people of all ages can spend time and have conversations. In creating a people-friendly, attractive space along Highway 101, it would be helpful to think of the road in terms of its function as a meeting place, and its aesthetics as a “streetscape painting” that has a focus and pleasing details.²

3.2 STRATEGIES TO ACCOMMODATE VARIOUS USERS

Concepts and design features to balance the power relations between vehicles and other highway users include the following strategies:

- C-6:** Place a priority on safety and access for pedestrians through design features on the highway, including raised medians with cut-throughs (as opposed to two-way left turn lanes) for safe pedestrian refuge; greater spacing between driveways (i.e. fewer curb cuts) that permit only right-in-right-out access; and mid-block pedestrian crossings.

² Source: Civic Trust and English Historic Town Forum, *Traffic in Townscape: Ideas from Europe* (London: Civic Trust and English Historic Town Forum, 1994), 4.



Strategies for Site Development

Source: Humstone and Campoli.



Creating a Sense of Place

Source: Civic Trust, 5.

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- C-7:** Create social spaces for pedestrians that feel comfortable for leisurely walking and informal interactions. These social spaces can be created by provision of: wide walkways; protection from the elements through exterior building design, awnings, or trees; mini-plazas created on extended sidewalk bump-outs; street furniture such as benches or concrete chess tables.

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3.3 STRATEGIES TO CREATE A SENSE OF PLACE

Engaging streets have a sense of place, that is, that they provide pedestrians with conceptual markers and a sense of the distinctiveness of a particular space along the road.

C-8: Design a streetscape that has definition and boundaries. Vertical definition is created by building heights that are in proportion with the width of the street. It would be out of character to build tall apartment and office complexes in the Town of Gibsons, but given the generous width of the highway, a case should be made for building low-rise buildings as opposed to flat, spread-out ones. Horizontal definition is more complex, and on one level, simply planting trees with compact, regular spacing along the highway can effectively create definition. But also, the long distance and sameness of the commercial strip between Pratt and North Roads, needs to be broken down into distinctive areas based on function or design. Ways this could be done might be to have distinctive landscaping signal the community uses around the arena and pool; to have a block townhouses break up the strip of commercial activity; or to narrow the roadway and extend the pedestrian realm into specific sections of the highway. Definition is particularly important at the “beginning and end” of the street – to have some structure or design mark the entrances into Upper Gibsons at Pratt and North Roads.

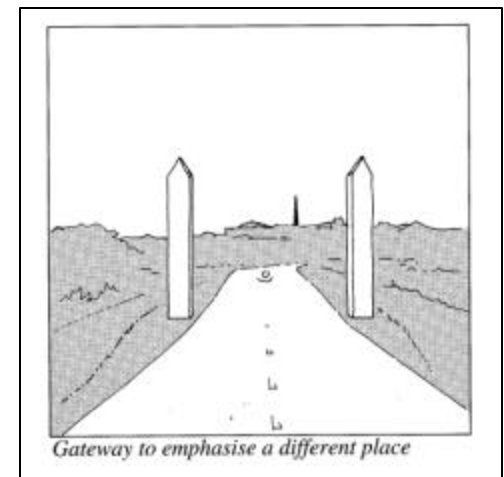
C-9: Blend “boundaries” to maximize the pedestrian realm and experience. This could mean extending the pedestrian realm out onto the street at bump-outs and narrowed sections of the road, or by having pedestrians mingle with bicycles and local traffic on frontage lanes that are developed in front of buildings, parallel to the highway. The blending of boundaries should also take place between the public space of the sidewalk and the private realm of buildings. People-friendly streets have doorways, glass window displays, overhead awnings, etc. that create a transition space to welcome pedestrians into a more private realm.

3.4 STRATEGIES FOR VISUAL APPEAL



Creating a Distinctive Area on a Linear Landscape

Source: Civic Trust, 5.



Defining a Beginning and End

Source: Civic Trust, 5.

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Some strategies to create visual appeal in the streetscape include to:

C-10: Design details and qualities that attract the eyes and form place markers for both people on the street and in their vehicles. These could be achieved by highlighting distinctive buildings such as the Heritage Theatre; using a variety of building materials and styles; installing lower, warm-coloured lighting fixtures; and the use of greenery and landscaping.

4 PUTTING CRITERIA INTO PRACTICE

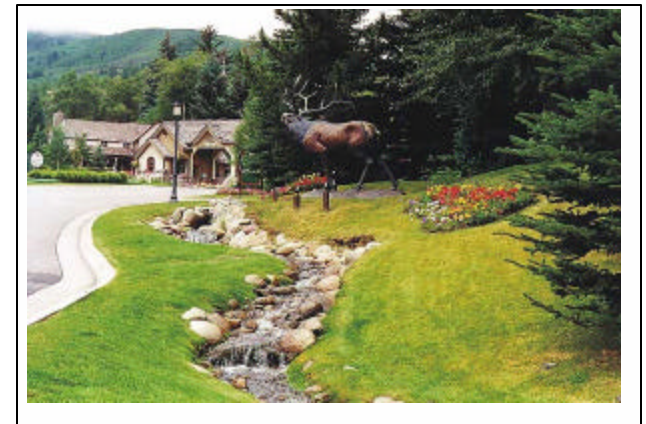
4.1 OPTION FOR HIGHWAY 101: EXAMPLE SHOWING THE USE OF ROUNDABOUTS

These photographs from Avon, Colorado, show a road design that could serve as a possible model for Highway 101 in the Town of Gibsons. Residents voted to construct a series of five roundabouts to relieve traffic congestion. The system, which was opened in 1997, includes extensive landscaping.



Median Pedestrian Passage

Source: Ourston Roundabout Interchanges Web Site



Sculpture Beside Roundabout

Source: Ourston Roundabout Interchanges Web Site

Left: Benchmark Road and Beaver Creek Boulevard

Source: Ourston Roundabout Interchanges Web Site

<http://www.roundabout-interchange.com/benchmarkbeaver.html>



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4.2 ROUNDABOUT CHARACTERISTICS

4.2.1 SUITABILITY OF ROUNDABOUTS FOR THE HIGHWAY 101

A roundabout is a type of intersection where traffic moves in one direction around a central island. Its basic principles of design and traffic control are: 1) the deflection of vehicles to the right on entering the circle, which forces a reduction in speed, and 2) a yield-at-entry traffic rule which facilitates traffic fluidity and increases capacity. The use of roundabouts reduces accidents, traffic delays, fuel consumption, and air pollution, while also improving the capacity and aesthetics of the intersection.³ In addition to these advantages, the roundabout is particularly well suited for Highway 101 within Upper Gibsons for a number of reasons:

- The lack of secondary roads on both sides of the highway limits opportunities for looping back in the opposite direction and for gaining access to properties located on the opposite side of the highway. A series of roundabouts would allow vehicles to change direction and make safer right-in, right-out movements at properties along the highway.
- The highway between Pratt and North Roads has intersections with unusual geometry, where roundabouts would facilitate a smoother flow of traffic than traffic signals and also cut down on the number of dangerous left-turn movements. This is particularly true for three-legged intersections, such as at where Seamount Way, Park Road and Sunnycrest Road meet Highway 101.
- Roundabouts would provide a means to integrate a special design element into the intersections of the highway at Pratt and North Roads. At these locations, attractively designed roundabouts, for example, incorporating public art and landscaping, would act as a gateway or entrance into the Town of Gibsons.



Three-Legged Intersection from Michigan

Source: RoundaboutsUSA Web Site
http://www.roundaboutsusa.com/other_us.html

³ RoundaboutsUSA Web Site, *Introduction to Roundabouts*. Available at <http://www.roundaboutsusa.com/intro.html>.

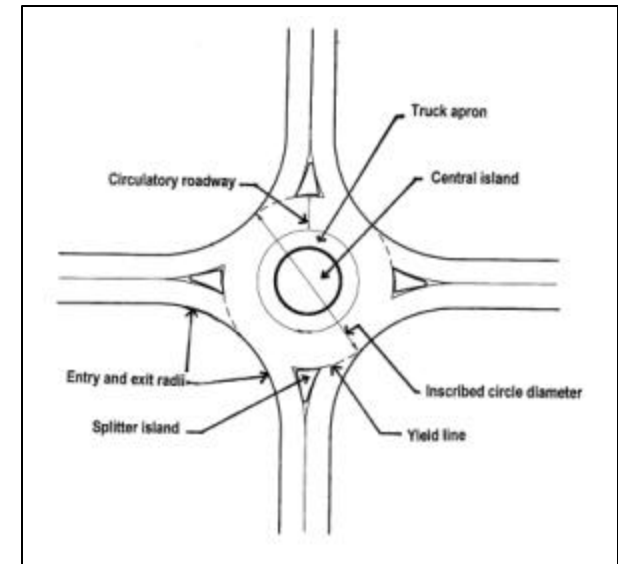
4.2.2 MODERN ROUNDABOUTS

The modern roundabout differs from traditional traffic circles in that the latter were characterized by tangential road entry and large circles which encouraged high speeds; rights-of-way given to entering traffic which locked up the circle; the presence of stop signs or signals which reduced traffic fluidity; and unsafe pedestrian crossings onto the central island. In contrast, great care is taken in modern roundabouts to design smaller central islands and entry and exit curves that force vehicle deflection and ensure lower speeds. In contrast to the gridlock of traffic circles or the pulsating flow of signalized intersections, roundabouts incur less delay and result in smoother traffic flow. In low traffic, vehicles can enter the roundabout without stopping, while in heavier traffic, they only have to wait for a gap in the circulating vehicles. Widening the circulatory roadway and adding flares, or additional entrance lanes, before the yield line, can increase the capacity of a roundabout.

Basic Types of Roundabouts

- **Mini-roundabouts** – have a central island of less than 4 metres and an outside diameter as small as 15 metres. Its central island can be slightly raised or flush with the level of the pavement. In the latter instance, the centre becomes drivable which allows roundabouts to be retrofitted into the smallest of intersections, because whatever space had been available for truck turns remains after conversion. Mini-roundabouts can be designed with two-lane entries and be used as medium-capacity intersections for arterial roads. Because to their smaller size, mini-roundabouts are most appropriate in areas where the approach speed is about 50 kilometres per hour.
- **Compact roundabouts** – have raised central islands that are larger than 4 metres and outside diameters of between 30 and 35 metres. They often have flared approaches to allow multiple vehicle entry.
- **Large roundabouts** – are often multilane and have outside diameters of up to 150 metres, which allow for the greater speeds associated with freeways.⁴

⁴ Jacquemart, *Modern Roundabout Practice*, 7.



Elements of the Roundabout

Source: Georges Jacquemart, *Modern Roundabout Practice in the United States*, U.S. Transportation Research Board, National Cooperative Highway Research Program, Synthesis 264 (Washington: National Academic Press, 1998), 7.

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Geometric Elements

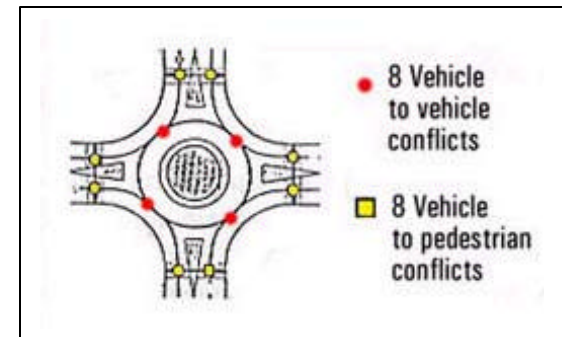
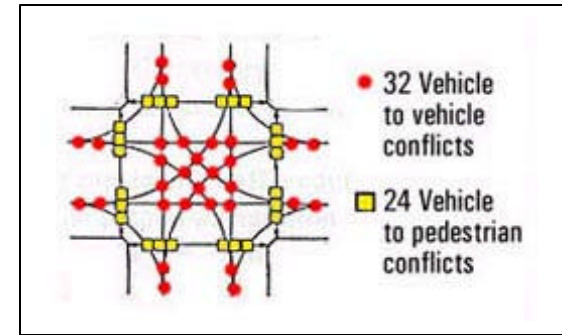
- **Central island** – the raised or flush (for mini-roundabouts) centre around which traffic circulates. It can also be designed as a raised centre with a mountable or drivable “apron” around it.
- **Truck apron** - the drivable part of the central island that accommodates the rear left wheel of circulating trucks. The apron is generally visually marked to discourage passenger cars from driving on it.
- **Circulatory roadway** – the roadway around the central island on which circulating traffic travels in a counter clockwise direction.
- **Inscribed circle diameter** – the circle formed by the outer curb line of the circulatory roadway
- **Entry and exit radii** – the minimum radius of curvature of the right-side curb at entry or exit
- **Splitter island** – the raised island placed in the leg of a roundabout to separate entering and existing traffic. It is designed to deflect traffic and act as a safety zone for pedestrians. The faster the approach speeds, the longer the splitter island becomes.
- **Yield line** – the broken line marking the outer edge of the circulatory roadway where vehicles wait, if necessary, for a gap in which to enter circulating traffic.⁵

4.2.3 PUBLIC PERCEPTIONS AND DESIGNING FOR SAFETY

The introduction of modern roundabouts in North America in the early 1990s was based on their success in Europe and Australia in improving safety, slowing vehicle speeds, and reducing traffic delays. Roundabouts have been shown to reduce fatal and injury accidents as much as 86 percent in Great Britain and 75 percent in Australia.⁶ In North America, a 1998 survey of roundabout safety conducted by the U.S. Transportation Research Board, found that modern roundabouts achieved far lower accident rates in comparison to intersections controlled by traffic signals or stop signs. Particularly relevant given the width of Highway 101, the study found that small-to-moderate

⁵ Jacquemart, *Modern Roundabout Practice*, 7.

⁶ RoundaboutsUSA Web Site, *Why Use a Roundabout?* Available at <http://www.roundaboutsusa.com/intro.htm#why>.



Conflict Points on a Regular 4-Way Intersection Compared to a Modern Roundabout Intersection

Source: RoundaboutsUSA Web Site
<http://www.roundaboutsusa.com/intro.html>

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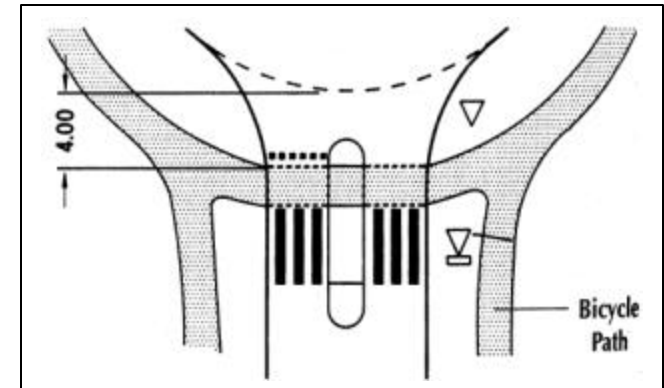
roundabouts – those having outside diameters of less than 37 metres – experienced a 51 percent reduction in total crashes and a 79 percent reduction in injury crashes following their conversion to a roundabout.⁷

The survey questionnaire sent by the Transportation Research Board to state and provincial transportation authorities in North America and to 26 municipalities and counties in the United States found unanimous satisfaction with roundabouts amongst the respondents. Responding states that did not have roundabouts often gave as their reason, questions about safety for drivers who might not be able to adjust and for pedestrians who might perceive that signalized intersections were safest. However, given the statistics of decreased accidents, it seems intuitive that decision-making in roundabouts is simplified, leaving less room for human error. A driver only has to make one decision over whether his or her path is blocked by a vehicle circulating in the roundabout, and if so, to wait for a safe gap in traffic. Furthermore, the number of potential conflict points is reduced from 32 at a four-way intersection, to eight at a roundabout.

The simplification of decision-making and conflict points applies also to pedestrians. The splitter island acts as a refuge area, so that pedestrians only have to look for one conflict point from entering or exiting traffic, depending on their location. Pedestrians experience shorter delays at roundabouts than at signalized intersections, reducing their motivation to jaywalk. Pedestrian safety is also improved because drivers must show greater concentration and care at roundabouts, in comparison to at signalized intersections where there can be more driver aggression on a green signal or a temptation to race yellow lights. Generally, pedestrian crossings should be located one vehicle length from the outside diameter – crossings closer to the roundabout may reduce capacity due to back-ups into the circle, while further distances mean that pedestrians will have further to walk and encounter faster traffic speeds. Pedestrian controlled signals may be installed, but these should be located at least 20 metres away from the circle so that vehicles do not back up into the intersection.⁸

⁷ Jacquemart, *Modern Roundabout Practice*, 2.

⁸ Jacquemart, 40.



**Example of Pedestrian Crossing
and Bicycle Path**

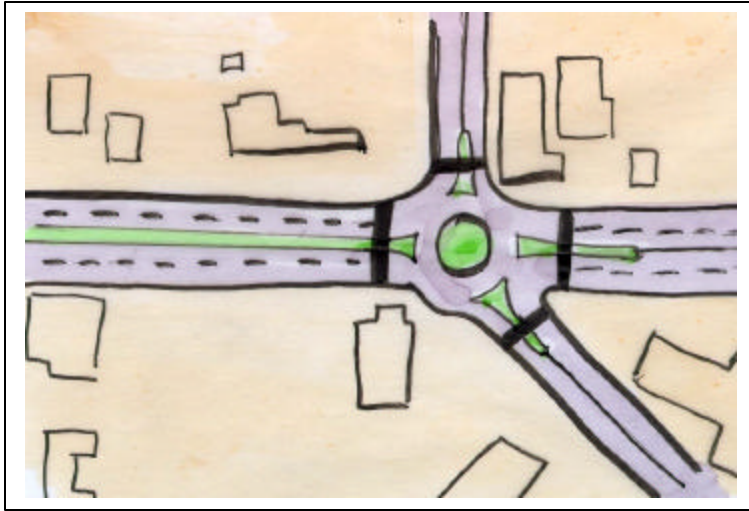
Source: Jacquemart, *Modern Roundabout Practice*, 40.

The safety impact for bicycles is mixed. A study from the Netherlands showed a general decrease in bicycle accidents. However, a German study found an increase in crashes when bicycle lanes were continued through on the outside of the roundabout, but no significant change when bicycles were mixed in with traffic, where they were more highly visible.⁹ For small roundabouts, it is advisable to discontinue the bicycle lane 10 to 20 metres before reaching the roundabout, while for compact roundabouts, it is preferable to maintain a separation of bicycle and vehicle traffic through a visible bike lane.

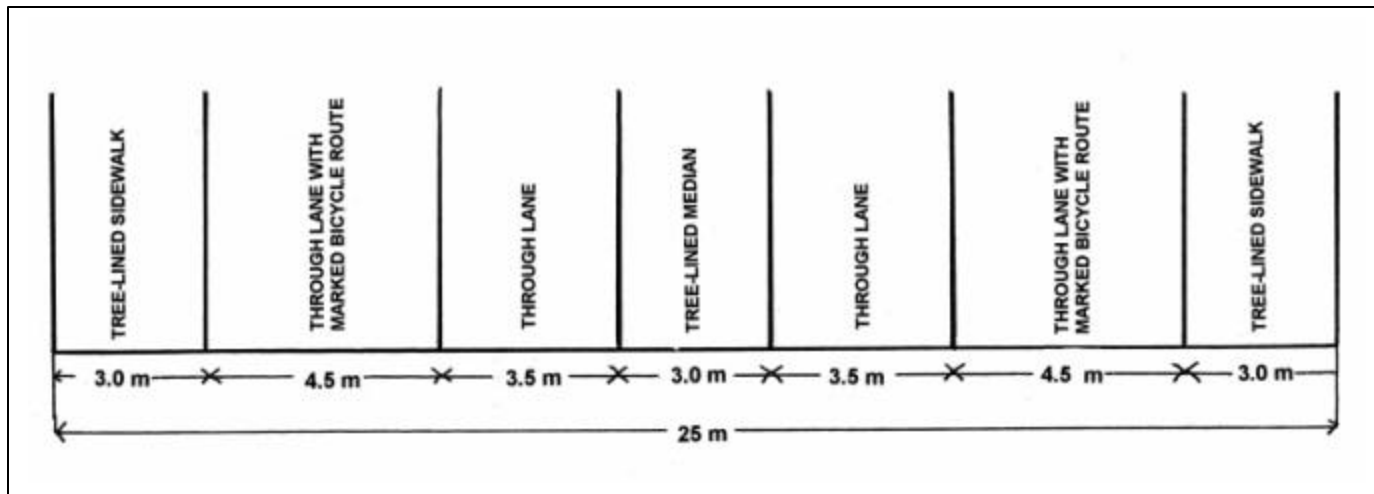
⁹ Jacquemart, 2.

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4.3 OPTION A: RAISED MEDIAN AND TWO THROUGH LANES IN EACH DIRECTION

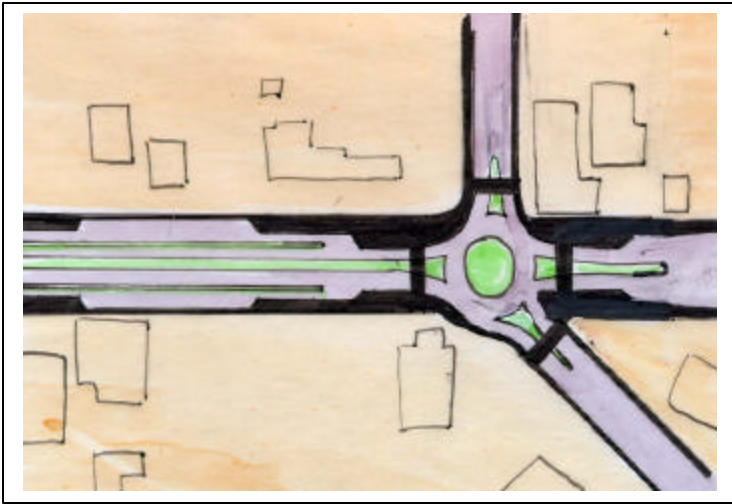


Intersection of Highway 101 at
North and School Roads.

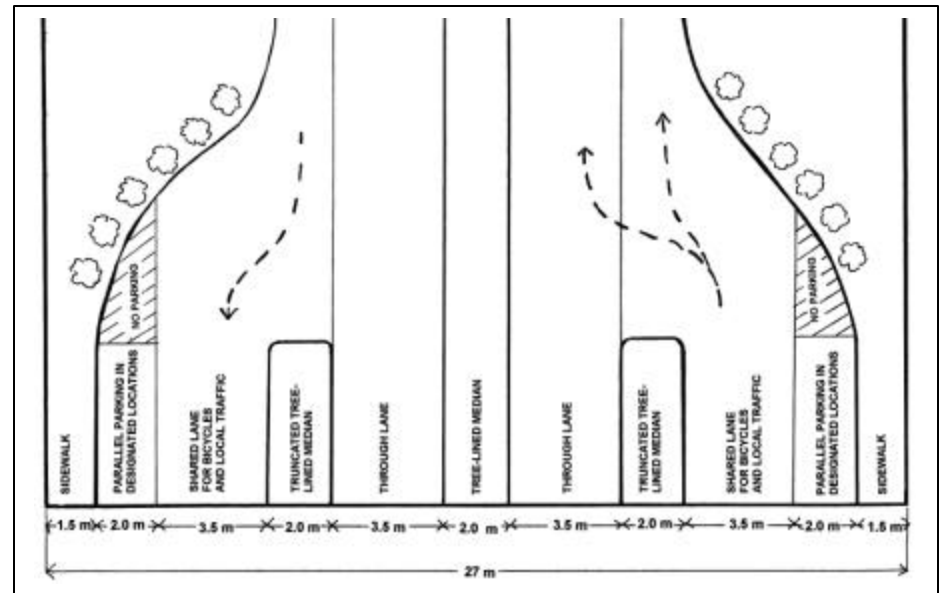


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4.4 OPTION B: RAISED MEDIAN, ONE THROUGH LANE IN EACH DIRECTION, SHARED LANE FOR BICYCLES AND LOCAL TRAFFIC



Intersection of Highway 101 at
North and School Roads.



4.5 SUMMARY OF DESIGN OPTIONS

Option A is a conservative design that incorporates the use of roundabouts at major intersections such as at Pratt, Mahan, Sunnycrest, Shaw, and North Roads, but stays within the lane configurations and width set out in the 1996 Road Network Plan Study prepared by R.F. Binnie and Associates. The central tree-lined median has a width of 3 metres, which would allow it be converted to a left-turn lane at smaller intersections such as at Park and Farnham. Though an extension in the highway overpass may relieve traffic flows through Upper Gibsons, the currently existing two lanes of through traffic in each direction is maintained to facilitate an anticipated increase in local traffic as population increases. The 4.5 metre dimensions of the outer lane, allows for a marked bike lane along the length of the highway.

Option B retains the use of a series of roundabouts, but attempts to increase the pedestrian realm in Upper Gibsons by extending the right-of-way to 27 metres. The smaller 2.0 metre central median would not allow for a left-turn lane, and access to properties on the opposite side of the street could only be gained after a change in direction at the roundabouts. This design only provides for one lane of through traffic. A side median separates through traffic from a frontage lane that is shared by cyclists, and in designated areas, by parking and local traffic. The side medians are truncated to allow bicycle and vehicle traffic to rejoin the main traffic lane before entry into roundabouts. Bicycles mixed in with circulating traffic provides for greater visibility and safety.

In Option B, parking on Highway 101 creates a buffer for pedestrians from traffic and it also increases the presence of people on the street. However, the road design seeks to avoid creating a monotonous line of parked cars along the full length of Highway 101. The community needs to collectively identify those locations that have particular cultural or social importance, and avoid placing on street parking in those areas. At these special areas, the sidewalk extends out into the roadway, replacing the frontage lane and parking spots, and forming a mini-plaza. Each mini-plaza will have a distinctive landscaping and street furniture. These mini-plazas will enlarge the pedestrian realm, as will the narrow frontage lanes. Patterns of behaviour exhibited on streets around the world, indicate that on narrow, shared-use lanes, pedestrians will feel free to walk on the lane, even though it is not strictly legal. But this behaviour does add to the liveliness of the street and creates awareness that roads are meant for multiple users – for pedestrians, cyclists and drivers.

Option B has the greater potential to create a vibrant environment on Highway 101, because of the extended pedestrian realm and wider sidewalks. But in both designs, the concepts and guidelines for access management and engaging street life hold true. Roundabouts in the two designs compensate for the lack of secondary streets. In Option A, the smooth flow of traffic is maintained by left-turn lanes at specific intersections, while in Option B, left-turns are prohibited and right-turns are made off the frontage lane, rather than from the through lane. Safety, the creation of social spaces, streetscape definition, and maximization of the pedestrian realm are equally important for both options. An important feature of both designs is the raised median that is covered by a

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